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BULLETIN OF THE

TAYLOR SOCIETY, New York

AN INTERNATIONAL SOCIETY TO PROMOTE THE SCIENCE
AND THE ART OF ADMINISTRATION AND OF MANAGEMENT

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Must Prosperity Be Planned?

High Wages and Prosperity

Notes on Economic and Social Surveys

Discussion of an American
Industrial Program

+IV.

Engineering Societies Building
29 W. Thirty-Ninth St.
New York

FEBRUARY, 1928 VOL. XIII, NO. 1

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Objects of the Taylor Society Incorporated

The objects of this Society are, through research, discussion, publication and other appropriate means:

1. To secure—for the common benefit of the community, the worker, the manager and the employer—understanding and intelligent direction of the principles of administration and management which govern organized effort for accomplishing industrial and other social purposes.

2. To secure the gradual elimination of unnecessary effort and of unduly burdensome toil in the accomplishment of the work of the world.

3. To promote the scientific study and teaching of the principles governing organized effort, and of the mechanisms of their adaptation and application under varying and changing conditions.

4. To promote general recognition of the fact that the evaluation and application of these principles and mechanisms are the mutual concern of the community, the worker, the manager and the employer.

5. To inspire in labor, manager and employer a constant adherence to the highest ethical conception of their individual and collective responsibility.

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Spring Meeting

The Spring Meeting of the Taylor Society will be held in Detroit, May 7 and 8. The subject of the meeting, on which detailed announcement will be made within the next few weeks, will be Time Study. Five sessions devoted to special phases of the subject will be provided.

The Detroit-Leland Hotel will be used as the meeting place and all those who plan to attend from out of town are urged to make reservations now. Rates range from $3.50 to $5.00 per day for single rooms with bath and from $5.50 to $9.00 per day for double rooms with bath.

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Comment

THE WAR left a condition of maladjustment in the delicately balanced industrial mechanism. Some industries have prospered and some have suffered a decline. New industries have sprung up and some of the older ones have almost disappeared. High wages, high costs and high prices have not found that stable relationship which was expected. There has continually been much uncertainty as to what the next season has in store. Shortly after war and again today unemployment has cast its ominous shadow over industry. Old assumptions, whether with respect to the distribution of consumer demand, to the balance between industries, or to general conditions of prosperity, have ceased to have validity. These experiences have stimulated managers to an interest in economic conditions.

MANAGEMENT now recognizes the need of study of industrial conditions and of forces at work in the economic environment. The economic survey—a rapid reconnaissance of a situation for the discovery of pertinent facts in time intelligently to modify conditions in the course of their development—has assumed a new importance. It is timely therefore to inquire into the technique of making surveys. As the beginning of such an inquiry Mr. E. E. Hunt presented before the December meeting of the Society the paper which is printed in this issue of the Bulletin. It considers the problem of planning and scheduling the successive steps involved in a survey.

AS NEW facts are discovered management may be inspired to constructive thinking about their significance, and to suggestions concerning industry's control of the forces which condition its activities. Mr. Williams' paper is the thoughtful consideration by a practical executive of the relation of high wages to prosperity, and Mr. Brougham raises the large question of the planning of prosperity by calculated manipulation of economic factors. Can the planning which has proved to be effective in co-ordinating the departments of the individual enterprise be established on a plane on which enterprises are but departments of one integral social enterprise? Is it possible to formulate a social budget through which government operations are so administered as to effect regulation of the total of individual enterprises?

Must Prosperity Be Planned?[1]

Can Effective Demand Be Adapted, Controlled and Graduated in Step with the Constant Increases in Productive Capacity?

By **H. B. BROUGHAM**

Pollak Foundation for Economic Research, White Plains, N. Y.

AMONG the recommendations to eliminate waste, prepared by the Hoover Committee of the Federated American Engineering Societies[2] appears the following: "Productive capacity should be conservatively based upon a careful study of normal demand." A little further on the Committee urges: "Production schedules should be based on a carefully formulated sales policy, determined from an intensive study of markets, thus stabilizing production."

Planners of prosperity, not for individuals but for the nation, would turn these maxims inside out. They would change the first maxim to read: "Normal demand should be based on a careful study of productive capacity, and should be steadily increased as capacity to produce increases."

The second recommendation would read, as revised: "The aim is not to stabilize production, but to expand production, and to remove any purely monetary hindrance to that expansion by providing that markets be supported by an always adequate purchasing power."

Thus private sales policy would be reduced to the welcome task of ascertaining the selective preferences of a patronage that is at all times able to buy the full output. Production would not be stabilized, but mobilized with a view constantly to raising the standard of living.

Is the fluctuating "effective demand," now too great, now too small, which characterizes opposing phases of the "business cycle" the defeatist factor in production? If so, let us see whether effective demand can be adapted, controlled and graduated—as, by common sense, it should be graduated—in step with the constant increases in productive capacity.

For if the general purchasing power of consumers cannot be increased with reference to the ever strengthening grip which management and invention take upon natural resources, then we must surrender to the blind forces that have hitherto ended our brief intervals of prosperity; it could neither be planned nor perpetuated, nor could waste be prevented. Let the fluctuations of demand be never so sharply watched, they would necessitate the establishment by whole industries of "peak loads" within their always uncertain range, and valleys of shadowy demand that must mean waste of plant and equipment, even where waste of merchantable goods and service is forefended.

Thus when demand failed the country during the deflation that began in July, 1920, high powered machinery and improved systems of management were either crippled, put out of commission, or used for destructive competition. To every individual producer the limiting of productive capacity to the prevailing shortage of demand, creating further demand shortages through shutdowns and unemployment, became imperative. Of course, for business as a whole this policy, which seemed inevitable, was also suicidal. It meant that management was harnessed to restriction and denial of the real needs of society and that its members were deprived of employment while still willing to produce from ample resources to the full extent of their needs.

Extent of Unused Facilities

Consequent on the slump of prices in 1920, the production of 195,000 manufacturing establishments fell during 1921, according to the Federal Bureau of the Census, to 57.1 per cent of possible output.

But with a plentiful consumer demand under a competitive system, it is conceivable that most industries would run at nearly their practicable capacity. In certain industries seasonal variations and fashion demands would still force a "peak-load" capacity. But even so, brisk demand in other lines would suggest the use of the same machinery in off seasons for the products demanded. Under such stimulus obsolescence of machinery and plant would be met by speedy replacement, while competitive duplication would be reduced by mergers permitting the economies of large scale production. But during a depression like that of 1920-21, when "overbuilt" factories and equipment hung like loose clothes about the shrunken form of industry, we have the Hoover Committee on Waste reporting: "Clothing factories are built forty-five per cent larger than is necessary; printing establishments are from fifty per cent to 150 per cent over equipped; the shoe industry has a capacity of 1,750,000 pairs of shoes a day, and produces little more than half that number; throughout the metal trades, standardization of products would permit of large reductions in plant and equipment."[3]

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[1] Paper presented at a meeting of the Taylor Society, New York, December 9, 1927.

[2] "Waste in Industry," Washington, D. C., 1921, p. 5.

Even in 1923, which was a record year for post war increase in physical output, the Bureau of the Census reported for all manufacturing industries an estimated output 28.2 per cent below capacity.

But it should be noted that the Census estimates of unused facilities in 1923, as likewise of those in 1921, are extremely undependable, because comparatively few plants keep accurate records of idle equipment. Moreover, there is a quite general custom of knocking off some fifteen per cent from the real capacity of a plant in allowance for repairs, lack of tools and material, etc., and of regarding the eighty-five per cent that is left as one hundred per cent capacity with respect to sales. During the war, and more recently, it has nevertheless been found that when sales approach the real capacity of a plant, these other matters are taken care of outside working hours. I might conjecture that members of the Taylor Society would regard the Census estimate of 28.2 per cent idleness for manufacturing industries, even during the prosperous year 1923, as quite too low an allowance. Indeed, one member, speaking from records in a number of plants in various industries, declares that the majority of plants "actually ran their machines only about forty to sixty per cent of the time," and that "lack of orders or sales is usually accountable for seventy-five to eighty per cent of the idleness."[4]

Mr. Clark added, in words which may prove historic in the annals of management engineering: "One of the major problems of American industry is to determine whether to reduce productive capacity until it matches effective demand for goods, or to increase the purchasing power of consumers to keep pace with a productive capacity that is constantly growing. The American standard of living is now the highest ever recorded for any nation, but it should be raised to a level far higher. Our present living standard, as reflected in consumption of goods, will have to be increased by at least one-third in order to absorb the normal unused margin of American industrial capacity. To the engineering mind the solution of this problem inevitably lies in the increasing of purchasing power, for it is inconceivable that the expansion of American industry can be arrested."[5]

But beyond what is common knowledge among business men and engineers, namely, that lack of demand accounts for the major part of the burden of idle overhead in years of slack business—and in years of so-called "prosperous" business as well—only rough estimates are available of the amount of machine idleness or human unemployment in industry.

As for serious or trustworthy studies of plant capacity, bearing upon the relation between the time operated by plants in the chief industries and possible time of operation, none seems thus far to have been made.[6]

But beginnings of research in this direction have been made. The Federal Bureau of Labor Statistics has information from some 7500 plants which shows the changes in the proportion of full and part-time operation and idle plants for the years since 1922; these figures refer merely to the number of plants, and are not informative as to the margin of unused time. The estimates between actual output and capacity in each industry in the Census of Manufactures for 1921 and 1923, give only a general impression regarding the extent of idleness, and are not dependable for the reasons stated above. The National Industrial Conference Board receives monthly reports of concerns in twenty-five manufacturing industries which show normal hours of plant operation as compared with average hours worked per wage earner per week, but no accurate records of unused capacity. Besides such data, percentages of capacity are computed monthly for cotton spinning and wool spinning and weaving by the Federal Census Bureau and for silk spinning and weaving by the Silk Association of America. The *Monthly Survey of Current Business* of the Federal Bureaus of the Census, Standards, and Foreign and Domestic Commerce, also furnish monthly percentages of production in various industries. Finally, since February, 1927, the Federal Reserve Bulletin has published a monthly index of industrial production. This index is valuable in showing the violent fluctuations in physical production for all manufactures between 1919 and the present. None of these sources, however, furnishes more than piecemeal data on the margin of idle facilities.

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[3] "Waste in Industry," pp. 17, 18.

[4] Wallace Clark, *Proceedings of the Academy of Political Science in New York*, July, 1927, p. 130.

[5] Ibid, p. 131.

[6] This is stated after inquiries sent to the following authorities, and receipt from them of negative replies: Wesley C. Mitchell, Director of Research, National Bureau of Economic Research; Warren M. Persons, Editor, *Review of Economic Statistics*, Harvard Committee on Economic Research; Virgil Jordan, Chief Economist, National Industrial Conference Board; Carl Snyder, Statistician, Federal Reserve Bank of New York, and Woodlief Thomas, Division of Research and Statistics, Federal Reserve Board, Washington.

Concerning the possibility of getting comprehensive data of such idleness, Mr. Wallace Clark says: "It is not so difficult as might be supposed to secure dependable records of unused capacity; in fact, it would be possible, by accurate charting methods covering only one month's time, to ascertain the margin of idleness in any American industry."[7]

Lacking dependable records of this nature, we may nevertheless get some notion of the extent of unused facilities from the Federal Reserve Board's new index of production. The index shows that production in the depression year 1921 was forty-four per cent below the average for 1923 to 1925, inclusive, while in 1926 it rose eight per cent above that average. This represents a high range of fluctuation of more than fifty per cent in six years, without taking account of the constant margin of idle time above the fluctuation range during that period.

The great increase in goods produced during 1926 over the depression year 1921 is usually explained as due chiefly to the increased purchasing power of consumers. Such purchasing power currently determines whether the savings of industry, expressed in capital facilities, are to be wasted or used to enhance living standards. Thus during the decade and a half between 1899 and 1914, while average real earnings of employed workers failed to advance, output per employe rose by less than one-half of one per cent a year.[8]

Indeed, in 1919, the physical output per worker fell three per cent below that of 1914. But since 1921 has occurred an increase in real income of thirty-six per cent.[9] Along with this increase in purchasing power, output per worker has increased by forty per cent, of which gain eight-ninths has taken place in the last five years, as indicated by the production index of the Federal Reserve Board.

Modern Technique Dispenses With Wage Earners

Later we shall inquire into the cause of these astonishing parallel increases in production and real wages. But it may first be observed that this change has occurred along with an absolute decrease in number of wage-earning workers. Thus the Census of Manufactures for 1925 shows seven per cent less wage earners than in 1919.

This absolute decrease took place while the population was increasing by two per cent a year, or twelve per cent in six years. It prompts at once the question whether the rapid development of American technical methods has something to do with the relative disappearance of human labor. Are automatic machinery and highly developed management methods now for the first time dispensing with human labor on a general scale, and in the process cutting off consumer purchasing power as hitherto expressed in the earnings of those dispensed with?

Statisticians have long observed the increase of "race suicide" among nations. Can it be that modern production is now committing "labor suicide"? Moreover, is it not playing the homicide to consumer purchasing power, by the process of automatic mechanization that enables management progressively to get along with fewer workers?

On behalf of the workers thus disemployed, Secretary of Labor Davis has been among the first to point out the danger. In his *Monthly Labor Review* article Secretary Davis remarks: "In the long run new types of industries have always absorbed the workers displaced by machinery, but of late we have been developing new machinery at a faster rate than we have been developing new industries. Inventive genius needs to turn itself in this direction. I tremble to think what a state we might be in as a result of this development of machinery without the bars we have lately set up against wholesale immigration."[10]

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[7] Op. Cit., p. 130.

[8] See paper by Paul H. Douglas, "Recent Movement of Real Wages and Its Economic Significance," Proceeding of the Thirty-eighth Annual Meeting American Economic Association. Supplement *American Economic Review*, March, 1926, pp. 33-37.

[9] *News Bulletin*, National Bureau of Economic Research, No. 23, February 31, 1927, p. 3.

The Department of Labor estimated in 1925, that if forty per cent of the coal mines should give full-time employment to only seventy-five per cent of the miners, they could produce enough coal to meet the nation's demands. The Department calculated that the country's window and glass factories could supply in seventeen weeks all that the nation could consume in a year, and that if fourteen per cent of the boot and shoe factories were operated at full capacity, they could supply the country with enough of their product.[11] The Labor Department estimates that the iron and steel industry, with its present equipment, could produce in seven months all that our markets could take for a year; moreover, if all the plants of this industry were made as efficient as its best plants already are, two-thirds of the present army of employes in the iron and steel industry might be dispensed with in producing the same output. The lumber industry is estimated to be working at thirty-five per cent under capacity. If all the lumber mills were brought up to the output per man-hour that is attained in the best plants, the industry's present "overbuilt" condition would grow into something astounding; the standard output in the best mills is 323 board feet per man-hour, as compared with mills that produce only fifteen board feet per man-hour. If a few members of the Taylor Society were let loose upon the sawmills of the United States, bringing them up to the standard of the existing best mills, and training 45,000 of their men to be as efficient as those now employed by the best mills, their force of 292,000 men would be displaced by these forty-five thousand men.

Now this accelerating process of reducing man-hours by substituting machines and more thrifty management for human workers, is one to which I assume that the Taylor Society, of all bodies, is justly and completely devoted. For the disciples of Frederick W. Taylor this consummation cannot come too soon. But they will be the first to recognize, I am sure, that while they are acting as scientific prime movers of this process, it is short-circuiting the flow of money for goods that must be sold if idle facilities are to be activated. If the circuit flow of money from producers to the disemployed workers is not in some way re-established, the consumer body that depends on a full quota of man-hours for its livelihood, together with the plants, machinery and management systems that depend on consumer purchasing power to take away the enhanced production may fall confounded, and industry will have to face more economic crises like that of 1921.

In searching for a preventive of such crises, it might be asked: What has served to prevent their recurrence during the past six years? Why, while still working far below the capacity of our industrial equipment, have we nevertheless made notable gains in production, in consumption, and in the real income of the people?

Our analysis thus far indicates clearly, I think, that savings in process, whether by superior force of organization or by improved machinery, tend to accumulate in the form of unused facilities; that is, into the concrete unused savings of the nation, representing corporate and individual investments, unless an increment of purchasing power can be provided to balance the steadily increasing store of physical savings. The savings are manifest. They are being provided more prodigally than ever, by the skills of the inventors and engineers that are being transmitted daily to the business organism. It is such individual and corporate savings that tend to produce shortages in consumer purchasing power, for the simple reason that one cannot at the same time have his cake and eat it.

But all cake, after all, is made to be eaten; and industry is carried on for the sole purpose of consumption. As more and more capital goods are produced through savings and economies, there comes a time when this accumulation must find release into consumptive potentialities and increase the standard of living. This has taken place.

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[10] See article "Is Prosperity Creating Unemployment?" by James J. Davis, U. S. Secretary of Labor, *Magazine of Wall Street*, October 13, 1927; also "Problem of the Worker Displaced by Machinery," by Secretary Davis, *Monthly Labor Review*, Bureau of Labor Statistics, September, 1927.

[11] *Bulletin of the National Metal Trades Association*, Chicago, October 15, 1925.

The Role of Bank Credits

It is of significance, then, that with this has come, also, a release of bank credits on a scale never before witnessed. They have put into circulation the needed additions to purchasing power without which the increase in consumer income and living standards would have been impossible. This increase has come out of new consumer credits extended by the banking system for instalment sales. and out of producer credits in the form of wage advances and profits for the upbuilding of new industries, in large measure before their products, converted into consumer goods, could come into the market.

In providing supplies for this new construction, the idle plant of 1921 has been requisitioned along with the rest, into producing for the augmented sales of production and consumption goods of 1926 and 1927.

This has occurred in a degree fortuitously and without concerted action. A brief analysis may help point the way to a definite planning effort that might be expected to lead to yet greater and more gratifying gains.

Dr. Benjamin N. Anderson, Jr., economist of the Chase National Bank of New York, has shown[12] that the expansion of bank credits between June, 1922, and June, 1926, of $9,600,000,000 exceeded by more than $2,500,000,000 the expansion of credits during the war. The combined bank loans and investments, which stood at $31,700,000 in 1919, had leaped to $42,700,000 by June, 1926. Out of this expansion proceeded a great and parallel expansion of bank deposits. In 1922, when the Federal Reserve banks were buying acceptances and government securities in the open market, the member banks alone reported an increase of $2,000,000,000 in deposits. In 1926, this experience was repeated, the member bank expansion exceeding $2,500,000,000 in deposits and $2,000,000,000 in loans and investments. Meanwhile gold imports, from the beginning of 1922, increased the reserves by nearly $900,000,000 to a total of $4,500,000,000 by November, 1924.

This flood of new credits overflowed the real estate markets and the securities markets, and became effective in increased commercial credits for building construction, instalment buying, and exports.

Dr. Henry E. Chandler, economist of the National Bank of Commerce in New York, tells how[13] during the three years from March 31, 1924, to March 23, 1927, the reserve balances of member banks increased by $428,000,000, and these reserves were expanded by twelve times in loans and investments, amounting to $5,000,000,000. During this period the total loans and investments of all banks in the United States increased by more than $8,000,000,000. Monetary gold increased by $230,000,000 in the same time, with an attendant primary and secondary expansion of loans amounting to more than twenty times this amount, and of loans and investments to thirty-five times.

It was by this unprecedented expansion of credits permitted by the elastic provisions of the Federal Reserve act, and helped by the rediscount and open-market policy of the Federal Reserve Board, that the country has had "easy money" during the past five years. By such means there have been billions of credits with which to inflate the stock market; billions to lend to Europe; more billions for real estate, and then some extra billions for new industrial growth, particularly in the automobile, building and electrical industries.

These extra billions of absolutely new money have been advanced in wages and in the price of supplies from all industry in the process of new construction of capital facilities. They have potently aided in making up the shortage of consumer buying power occasioned by the savings of corporations and individuals, as expressed largely in the form so familiar to the members of the Taylor Society—that of unused plant facilities—and, to a degree, have put these facilities to work.

The process is analyzed at length in the books of Messrs. Foster and Catchings[14] which present their theory of the deficits of consumer purchasing power and how these deficits may be made up by the right flow of bank credits into capital construction.

But these authors point out that the expansion of credits that has taken place during the past few years has been beneficially graduated only by happy chance. It has simply happened that the automobile industry could absorb much of this added flow of bank money by reason of its potentialities of growth. In this process the new industry took the major part of the surplus labor and products of the older industries. Thus the added flow of bank credits, representing a new creation of money in circulation, gave labor an added flow of wages in a new field; provided consumers with a direct source of new money in instalment credits, and supplied industry as a whole with added markets for its overspill.

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[12] *Chase Economic Bulletin,* Chase National Bank, November 6, 1926.

[13] *Commerce Monthly,* National Bank of Commerce, New York, November, 1927.

[14] William Trufant Foster and Waddill Catchings, "Money," "Profits" and "Business Without a Buyer," Pollak Publications Nos. 2, 8 and 10 respectively.

Yet despite this great volume of business in the building of a new industry and the expansion of others, the wholesale price level has sagged, gently but continuously, during the past three years. That means that goods have still poured into the market somewhat faster than consumers could take them away on a stable price level. Their buying power, fed by the credit expansion of the new motor industry, rose providentially to prevent the sag in prices from becoming steeper in precipitous declines, and in time to enable manufacturers, especially those geared to large-scale production, to apply the increased economies of scientific management that have reduced costs and wrung profits out of the rather lower price level.

The principle of this beneficent credit process, permitting a gain without parallel in the standard of living of any nation, is thus formulated by Messrs. Foster and Catchings:*"It is impossible for the United States, or for any country, to use the facilities it already has, to a sufficient extent to keep business prosperous, unless it continues to expand bank credit at a sufficient rate in connection with the building of new facilities."*

Of course, if the facilities for producing goods with existing equipment can be utilized more scientifically, whether by management methods or by installations of improved machinery, or both, they will dispense with man-hours and consequently with wage earners at an increasing rate. By so much the more, then, it becomes necessary to provide these surplus wage earners with employment in new industries, thus recouping purchasing power through wage payments for the erection of the capital plant of these industries.

It should be borne in mind, also, that while lowered production costs may result anyway in a somewhat lowered price level, and resultant gain in real wages, this gain can be realized only by those who continue in employment. In any event there can be no resultant gain for workers who are dispensed with, hence no gain in consumer purchasing power, if they are left without alternative employment and are cut off from the sources of renewed purchasing power in wages. Eventually the dearth of purchasing demand, springing from the want of growing numbers of the disemployed, would find its sure reflection in an increase of unused facilities undergoing the charges of depreciation.

Outlets Into "Non-Productive" Public Works

Foster and Catchings have observed, further, that during the process of constructing new capital facilities, toward which the displaced worker may find his way and industry its outlet for the sale of surplus goods, it makes little difference whether the borrowed money is used to build a factory or a city hall.

Once these new facilities are built, however, it does make a great deal of difference if there remains in the industry to which the putative factory is added, a margin of unused facilities. For the result must be, without some new outlet for the surplus goods in that industry, that the addition to its unused facilities of a new factory is so much excess equipment.

In such case it were better if the new capital construction had gone into a city hall or other public works, which, when completed, could not be used for the further production of intermediate or consumer goods. It may be said, therefore, especially during the present rebirth of existing facilities through more productive management and improved tool-power, that the planners of prosperity may look to the building of "non-productive" public works on an extended scale, as a safe vent for all this new dynamic industrial energy.

Thus credits might flow generously to the construction of wider levees for the Mississippi and the protection of its tributaries. They might be employed to build a comprehensive system of inland waterways. They would be needed in extending the network of State and transcontinental motor highways; in systems of parks and parkways; in the Haussmannizing of cities; in the construction of vast new sources of water supply; in multiplying school buildings and plants of State universities; in works of government reclamation and drainage, and the like. Such credits would operate to set a great part of existing industry to making the new works and would enhance the living standards of the nation. The glories of the builder kings and emperors of old have passed, but these new works of a democracy endowed with money, modern tools, and organizing genius would help lift civilization to a new height.

It might be objected, however, that enlargement of the scale of public expenditures through bond issues, while it would delight the hearts of contractors and heads of the cement, steel and building industries, and would provide employment for hundreds of thousands of workmen, and restore a falling price level through their purchases, it would nevertheless be followed by a day of reckoning. How would the country bear the additional burden of taxes for interest and sinking fund payments?

Reference to the experience of depression during 1920-21 may help resolve this doubt. During that period it is competently estimated that American industry suffered losses aggregating twenty billion dollars. If, in the summer of 1920, signs that were then manifest on all sides could have been heeded, and one or two extra billions of Federal and local bonds issued for non-productive public works, the depression would have been averted. The new money, with its customary tenfold velocity, would have circulated like a transfusion of new blood through all the veins and arteries of industry. New purchasing power could then flush out the congested areas of surplus goods, and with renewal of demand yet more credits would have flowed spontaneously into productive works. Instead of the dead loss of twenty billions in idle and depreciated plant and products, with unemployment and business stagnation, new public works would be set up and in use to balance the added bonded indebtedness, and prosperity would be prolonged with fresh business expansion.

To prevent inflation, which with deflation is the twin evil of the business cycle, a reverse process would serve as preventive. Unless prevented, prices would be rising faster than wages, rent and interest, with resultant suffering through the heightened cost of living. But before serious inflation had begun, application of a policy of extra taxation for the payment of public debts would serve as a check, and obligations previously incurred to prevent a fall in the price level would be discharged so as to steady the price level until production could catch up with demand.

For the planning of public works should always be controlled in order that new credits may not be applied faster than the supply of goods to consumers can be augmented. The aim should be to allow the buying of always greater quantities of goods on a stable level of prices.

Outside the field of non-productive public works lies the domain of new and productive private industries. While our factories are about three-quarters electrified, we are yet in the infancy of giant power. Our transportation systems, farms, and one-fourth of the factories have yet to be electrified, with the creation of central power plants through the country. The automotive industry, inspired with the spirit of a Lindbergh, has yet to compass the empire of the air, helping further to transmute the otherwise idle facilities of earthbound industries into means for a continuously expanding prosperity.

These emergent industries are of the productive kind. They will compete for consumer demand with the stabilized industries. Ultimately they will threaten to upset with their productive power the balance of credit offerings to reinforce consumption demand. We need more accurate gauges of production and consumption than now exist, in order that this augmenting process can be controlled.

The appropriation of at least a million dollars would enable the Department of Commerce to ascertain what industries are "overbuilt" and by how much; what is their capacity beyond reasonable "peak loads" and how long the "peak-load" periods are; what is the percentage of idleness in the chief industries; what fraction of maximum capacity is being used and what output should be expected of the various industries using their equipment continuously at capacity.

Accumulation of trustworthy data along these lines, together with the construction of good indexes of employment and of the general and retail price levels, would aid materially in the planning of prosperity which should come on a national scale as a new department of management engineering.

(*For discussion see page* 12)

High Wages and Prosperity[1]

A Discussion of the Effect of Wage Increases on Manufacturing Efficiency and General Prosperity

By HENRY H. WILLIAMS
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THIS paper is the outcome of a paper of mine which appeared in the Industrial Management Magazine. At the suggestion of Dr. Person I am restating in condensed form some of the ideas contained in this article and I am supplementing this with a discussion of several questions which were raised in a correspondence which followed its publication.

The wage rates in our factory have more than doubled in the past fifteen years, but in spite of this our manufacturing costs are now lower than they were at the beginning of that period. The high wage rates which were thrust upon this country by the war have operated to lower our cost of manufacturing because we have been compelled to employ machinery and power to accomplish tasks formerly done by hand. An example will illustrate the manner in which high wages compel us to adopt machinery.

Let us suppose that I run across a machine which I think we can use to advantage. Before it can be purchased I must make an estimate of savings which may be derived from its use. Against this we compare the interest, depreciation, maintenance and cost of power. And then when all this is done, I will be able to obtain approval of the purchase if the savings per annum amount to something like fifty per cent of the purchase price. Now keep in mind the fact that, because of the greatly increased demand for labor-saving machinery, its cost has not increased in the same ratio as have wage rates. Also keep in mind the fact that the cost of power has not increased, in fact, has in many instances actually declined, and it will be obvious why high wage rates compel this adoption of labor-saving machinery.

The conservatism in purchasing labor-saving machinery which is involved in the policy of requiring a fifty per cent return on money thus invested is not at all unusual. The Lincoln Electric Company advertises that they will purchase any machine or process which can be guaranteed to pay for itself inside of two years. Some executives figure even more rigorously than this. One man wrote me that his firm ordinarily would not purchase machinery unless the figured savings in one year equaled the purchase price. In spite of all the hazards involved in tying up money in machinery these policies are quite conservative, so that when machinery is installed because of rising wages, the increase in productivity is apt to be in a very much greater ratio than the increase in wages.

Some time ago the idea occurred to me "What would happen if our wage rates should again be doubled?" I have reviewed all the manufacturing operations in our plant and studied carefully all the possibilities for improvement and I am quite certain that after a few years our costs would again be lowered. I see quite clearly the steps which we could take. Compelled by higher wages, appropriations for machinery would be approved which would not now be considered.

Not only would we install more labor saving machinery, but also we would abolish many wasteful practices which lower wages permit. A number of years ago we booked a great deal of accommodation business. We took orders for particular articles and special sizes which the individual customers desired, and for which there was very little general demand. Because this business involves a very high proportion of hand labor, for it is impossible to do small lots of work on automatic machinery, it has become very unprofitable with rising wage rates, and somehow or other we have managed to get rid of a large portion of it. With wage rates still higher we would manage somehow to abolish what is left of it.

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[1] Paper presented at a meeting of the Taylor Society, New York, December 9, 1927.

In 1906 when I first went to work laborers used to come around in droves looking for work at ten and twelve cents an hour. Times were very bad. Wages were low and had been low. The war raised these rates for labor three or four times and since 1921 this country has experienced a prosperity such as has never before been known. Professor A. H. Williams of the University of Pennsylvania told me the other day that the income of the United States has increased forty-six per cent since 1921. In other words, in the last six years our advance has been nearly half as great as all that has been accomplished in the centuries since Columbus first set eyes upon America.

Looking over the countries of the earth we find many different levels of wages and we find the wage level is a very good index of the prosperity of the country. Where wage rates are very low we find an almost total absence of what we would call machinery. In the Orient ships are coaled by gangs of women who pass baskets from hand to hand. At the other extreme we find England where wages are higher than in any other foreign land, but not nearly as high as here.

In England the knowledge of machinery and power is certainly as great and widespread as here. In fact the English have been the pioneers in this industrial era. Yet labor-saving machinery is not employed to as great an extent as here, nor is the amount of power employed per capita one-half as great. This is a remarkable situation. It certainly seems that high wages must first be paid before the men who are in charge of industries will install labor-saving machinery to the widest possible extent.

Few people realize how very abundantly machinery and power can produce and can justify high wages. That we are at the very beginning of the machinery era, will, I believe, be apparent to everyone who has investigated and considered the matter.

The developments of the recent past are thoroughly amazing. The electric current consumption in the United States has increased fourfold in the last decade. Each man in the automobile industry accomplishes three times as much per hour as he did ten years ago. Ford advertises the fact that between 1913 and 1926 raw material cost increased fifty-two per cent and labor increased one hundred and nineteen perecent. In the face of this the retail price of the motor car dropped thirty per cent.

In the steel industry, according to the President of the Chamber of Commerce of the United States, machinery has brought about extraordinary savings of labor. Two men do as much as fourteen in the work of charging furnaces; seven men cast as much pig iron as sixty; in open hearth operation one man does the work of forty and two men can unload as much pig iron in a day as formerly one hundred and twenty-eight men did.

Whatever may have been the cause, there is in many industries a very substantial increase in production per capita to be disposed of. How shall it be divided among the various interests involved? Shall this entire increase remain in the hands of capital? Or shall it be given to labor in the form of increased wages? Or shall it be distributed to the entire population in the form of lower prices?

I have argued in the foregoing that the greatest possible incentive to increased productivity and prosperity would be derived from increasing wages. But it has been suggested to me by several persons that the best and fairest way to distribute this increase would be by lowering prices.

Let us examine some of the effects of lowering prices upon productivity. In most factories a large and important part of the improvement in production methods comes from the minor executives and even from the workers themselves. Is it likely that the spirit of progress will long be found to exist in a place where the only result will be the displacement of some fellow employe when labor-saving improvements are suggested and developed?

There is another aspect of this situation. Suppose, for instance, that I should inherit a hundred thousand dollars which I invest in Government securities and gilt edge bonds of long term maturity which bring me in four thousand dollars a year. With this four thousand dollars I should be able to purchase products of the farm and of the factory which I desire and I should also be able to purchase a certain amount of personal services, a servant, if you please. Ten years hence, if wage rates are held constant and improvements in manufacturing methods are distributed by lowering the prices of products, my four thousand dollars per year will purchase just as much of the products of industry and more personal service. I shall be richer without having turned a hand and I shall very likely avail myself of the opportunity of withdrawing another person from industry for my personal service.

If, on the other hand, wage rates are increased but the products of industry are priced approximately the same, I shall be able to purchase the same quantity of articles for my money as long as I live, but I shall be enabled to enjoy less and less of the personal services of others. This would seem to be a fair and reasonable penalty for doing nothing.

And, indeed, does it not seem fair and just that those primarily concerned with increases in production should profit more from such increases than the rest of the community? And might it not be wise to make productive occupations more and more attractive? The more producers we have in the country in proportion to the non-producers, the more will be produced. The more money the producers have in their pockets, the fewer the non-producers necessary to persuade them to buy.

Let us turn from this discussion of the effect of higher wages and of lower prices upon our prosperity to a brief consideration of the ideas and attitudes of the three parties most vitally interested. What do Labor, Management and Capital each plan to do with the increased productivity derived from the use of machinery?

Labor desires increased wages. There is no question about that. Labor has organized itself into trade unions very largely for the purpose of securing higher wages. The American Federation of Labor has recently made the following announcement: "It no longer strives merely for higher money wages; it no longer strives merely for higher real wages; it strives for higher social wages, for wages which increase as measured by prices and productivity.

"For, higher productivity without correspondent increase of real wages means that the additional product has to be bought by others than the wage earner . . . "

Organized labor in a word has dedicated its highest efforts to the attainment of a widespread distribution of the increased per capita production. It is not, I believe, particularly concerned what means should be employed in the attainment of an increased real wage, whether wages should be raised, or prices lowered. It is the final result that is of interest.

As far as I can see it has failed to achieve this aim in the past six or seven years by a very wide margin. While productivity and the income of the United States have greatly increased in the last few years, real wages have increased little, if any. In new and advancing industries where rapid progress in production methods makes increased wages possible, labor is not apt to be strongly organized, as witness the automobile industry. On the other hand, in the textile industry, where no considerable improvement in machinery has been made for many years, labor is fairly well organized. Labor is strong where it can accomplish the least.

The Taylor Society is concerned most of all with the problems confronting Management, and it is fitting that our principal discussion should be about Management's attitude toward the distribution of the increased production derived from machinery. Under the heading of Management I should like to class not only paid managers, but also the men who manage the businesses which they own, and although the latter might be classed as capitalists, their interests are primarily those of the manager.

One fact which stands forth most clearly in my mind is that all managers whom I have known have been resolutely opposed to high wages. Some years ago Mr. Otterson, who was then president of the Winchester Arms Company, made an address before the Taylor Society at Boston. He complained very much about the Prohibition Law which had just then gone into effect. He said that with higher wages and no saloons the workers were indulging themselves in leisure instead of in whiskey. Many are the reasons which are given for opposing high wages.

Likewise, managers are in general opposed to prices being lowered. Nearly every industry has its association which aims to stabilize prices. And in some industries there is an active effort to increase prices. For instance, the corrugated paper box manufacturers not long ago were prompted by their association to figure their costs all exactly in the same manner and to quote prices accordingly. The result of this has been an increase of twenty to thirty per cent in cost to us. It is true that they in turn were charged higher prices for one of their important raw materials by all the manufacturers in that branch of the business, but this increase to box manufacturers was not as great as that which they passed on to the consumers.

The fact of the matter is that managers, like the average run of human beings, are very apt to follow those lines which promise to bring the quickest advantage to themselves. With this idea in mind it will be perceived that the interests of the manager are diametrically opposed to those of labor. It is to the interest of the manager of a business to retain as profits all possible savings derived from the increase in the production of each individual in his organization.

It may be good policy to pay wage rates sufficiently high to attract good workers, and it is usually necessary to set prices to meet competition, but beyond that it would certainly be assinine to go, no matter what savings are accomplished with the aid of machinery.

It matters not that almost all industrial enterprises will ultimately benefit by the widespread distribution of the increased production by machinery. The question is what will be our earnings next month or next quarter?

The situation is not dissimilar to that which confronted labor many years ago when machinery was beginning to displace workers. Those workers who were displaced faced starvation. It mattered not to them that the condition of all labor would be immeasurably improved in years to come by the application to production of machinery and power.

The feelings of Capital are, I believe, to a considerable extent the same as those of Management, although I think in a much milder degree. Certain it must be that the large financial interests back of the great automobile industry must realize the advantage to their industry of an ever widening prosperity.

If the purchasing power of the workers of this country should increase twenty-five per cent it would not be difficult to predict what would happen in many industries. The demand for automobiles would undoubtedly increase to an enormous extent. The building of new living quarters for a vast section of our population would be immediately undertaken and the industries affected by such construction would prosper. All sorts of electrical appliances and conveniences would have their sales augmented. I do not think that the demand for most farm products would increase, nor would many branches of the textile industry prosper to the same extent as those I have mentioned.

Suppose, realizing this, some large financial interests having great influence over many industries, should purchase for speculative purposes, stock in concerns that would undoubtedly prosper greatly by reason of a general wage increase, and should then do all in their power to bring about the increase in wages? It is quite probable that there would be a noteworthy effect because there are a host of managers who listen most attentively to the desires of large financial interests.

I should like to lay before this meeting for discussion, my conclusion that the prosperity of this country will be hastened and increased more than in any other way, by rapid increase of wage rates, where machinery makes this possible. Management stands with great determination athwart this path to prosperity, because the widespread distribution, in any form, of the increased production by machinery is not consistent with the immediate welfare of management.

I am confident that such a discussion will support my contention, and that this Society will endeavor to ascertain some plan of action which will reconcile the immediate advantage of management with the most rapid increase in our national prosperity.

Discussion

Of Mr. Brougham's and Mr. Williams' Papers

William Green.[1] It is my opinion that Mr. Williams has, in the main, given endorsement to the wage policy of the American Federation of Labor. In this respect I am in hearty accord with his logic and his conclusions. The convention of the American Federation of Labor held in Atlantic City, New Jersey, October 5 to 16, 1925, made the following important declaration:

> Social inequality, industrial instability and injustice must increase unless the workers' real wages, the purchasing power of their wages, coupled with a continuing reduction in the number of hours making up the working day are progressed in proportion to man's increasing power of production.

The paper of Mr. Williams shows clearly that many thinking people are approaching a study of the wage question in a most enlightened and scientific way. We are discarding old theories of low wages and low production costs and are accepting the theory of high wages and a constant increase in purchasing and consuming power. If, through the use of machinery and an increase in the productivity and efficiency of workers, the volume of manufactured products will be increased, it is absolutely necessary that we create a market for this increasing volume. This can only be done by a development of purchasing and using power of the masses of the people to a high and still higher level.

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[1] President, American Federation of Labor.

How can this be done? There is only one way. It must come through a distribution of money in the shape of wages. An increase in this distribution in the shape of wages must correspond with an increase in the producing power of industry. Experience during the last ten years has clearly shown that wages can be increased and manufacturing costs lowered. Many outstanding employers of labor have declared that high wages are not inconsistent with low manufacturing and commodity costs.

Mr. Williams in his paper states:

> Each man in the automobile industry accomplishes three times as much per hour as he did ten years ago. Ford advertises the fact that between 1913 and 1926 raw material cost increased fifty-two per cent and labor increased one hundred and nineteen per cent. In the face of this the retail price of the motor car dropped thirty per cent.
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> In the steel industry, according to the President of the Chamber of Commerce of the United States, machinery has brought about extraordinary savings of labor. Two men do as much as fourteen in the work of charging furnaces; seven men cast as much pig iron as sixty; in open hearth operation one man does the work of forty and two men can unload as much pig iron in a day as formerly one hundred and twenty-eight men did.

In giving these figures, Mr. Williams might have referred to the glass industry where machines operated by a few employes have taken the place of scores of workers who blew bottles and window glass by individual hand methods.

In the face of all these facts it is quite disconcerting and disappointing to know that there are managers of industrial enterprises who are still opposed to high wages. They seem to believe still that the increasing profits which come through the use of power and machinery and through the development of the productivity and efficiency of the individual worker should go to those who own and control industry. Such a policy would ultimately bring ruin to those who are temporarily benefited. It would be of no value to the owners of industry to install machinery and equip their plants with power so that greater savings and greater economies could be introduced if they were merely to pile up their goods unsold and unused because the income of the masses was so low that it was impossible for them to buy or to consume. Enlightened management will not only attach importance to the theory of economic production but will attach even greater importance to the development of a purchasing and consuming market.

Leonard Kuvin.[3] Any discussion of prosperity must define it. Can we consider ourselves prosperous when eighty-three per cent of the federal income tax reports filed indicate possession of only forty-eight per cent of the nation's income, leaving the balance to the remaining seventeen per cent? The bulk of the nation's money income is in the hands of the very few. A nation cannot be prosperous with vast numbers in want of necessities any more than can an egg be ten per cent fresh.

Though it is self evident it ought to be repeated that the bulk of our purchasing power is vested in the hands of the few. Any study of economic phenomena must not and cannot escape the consideration of our faulty income distribution. We all know, but little consider, that the great numbers of wage receivers cannot buy what is waiting to be produced and sold. We reflect on idle industrial equipment, unemployment, dumping of goods on foreign markets, periodic depressions and the smoothing out of the business cycle, but we little reflect on the smoothing out of the income distribution and the placing of purchasing power in the hands of consumers.

In 1925, over one million returns, or twenty-eight per cent of all, were for incomes of less than $2,000 per year; two million, or forty-eight per cent, for incomes under $3,000 per year. In other words, about half of the incomes reported were of less than $3,000 per year and more than one quarter were of less than $2,000 per year. We must not forget that our machinists, draftsmen, designers, engineers and production men are in these classes. The men who contribute so much to production do so little consuming. Little wonder that there is idle industrial capacity.

If we say that our industry is idle twenty-five per cent of the time, we can say that about five billions of dollars are held which might be paid in wages and thereby released for consumption.

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[3] Index Number Institute, New Haven, Conn.

How can this be brought about? There is but one answer and that is more and higher real wages.

Returning once more to the consideration of income distribution I find calculations reveal an amazing condition. Assuming a specific distribution is normal and compatible with our present economic structure of society and therefore quantitatively equal to one hundred per cent, the income distributions for 1923, 1924 and 1925 were respectively 3.16 per cent, 3.06 per cent, and 3.06 per cent perfect.

This condition is not descriptive of prosperity. It reveals maldistribution.

Otto T. Mallery.[3] The heart of Mr. Brougham's paper is that public works should be expanded at certain times to increase consumers' purchasing power. If we accept this theory, how can it be carried into practice?

For several years I have appeared before legislative committees in an attempt to find the way over the hurdles. The first hurdle is the lack of long range planning of the work itself, the second, of the appropriations for it. The Federal Government is more forward looking than most, and now lays out its program for public buildings and public roads five years ahead. Our recent attempts have been to persuade Congress not to appropriate the same amount each year, but to increase it in years of depression.

A bill will be introduced again this session to provide contingent appropriations for future years. This is an innovation in legislative practice and faces the usual obstacles common to all innovations. The contingency chosen is a period when private construction the country over has fallen an agreed per cent. This thermometer is chosen only because it is simple. There may be better ones.

The volume of municipal public works is four to five times that of the federal government. Cities tend to borrow up to their limit in good times and cripple themselves for selling bonds for public works in bad times. The Philadelphia Chamber of Commerce is about to send out a bulletin to other Chambers of Commerce asking each to create a committee on "Prosperity Reserve." This is a study in political science plus city planning. Members of the Taylor Society who will volunteer to act as advisers to such committees will be most welcome. Please send in your name to the Society. There is a challenge to us as "planners of prosperity" and management engineers to give this theory the technique to operate. It is nobody's business unless we make it ours.

Royal Meeker.[4] Mr. Brougham is neither so radical or so original as he would have us think. All that he has said is, in effect, that the familiar equation $MV=PT$ is true. All economists know the meaning of the terms of the equation. M represents the total volume of money, including credit in circulation. V represents the velocity of circulation of bank notes, checks and money proper. P equals the general price level, that is, the index number of prices of all things bought and sold. No such index number exists, but we have approximations to it. T represents the total volume of transactions of all kinds, both tradings in commodities and tradings in services.

All that Mr. Brougham has said is that when T increases in volume, either M or V must increase correspondingly, or P must decrease in like proportion. This is neither new nor radical. Much dispute rages about the question as to whether P is the cause of M or M is the cause of P. Mr. Brougham has shed no light on the resolving of this question. He assumes that M is of primary importance and is, therefore, the cause of P. In other words, the volume of currency does determine the price level and, therefore, it determines the degree of prosperity or depression which prevails within our industrial society.

Before proceeding further in the discussion along these lines, I wish to criticize a statement which Mr. Brougham has made with regard to government expenditures. He spoke of government construction as a means of putting into circulation more purchasing power without creating a proportionate (or disproportionate) volume of goods to absorb this purchasing power. He has said that this kind of government expenditure, by increasing the purchasing power of the community, enables the community to buy the commodities produced by itself at prices that pay the cost of production, including profits, to the business enterprisers. He has said in effect that without these government expenditures, which he calls unproductive, it would be impossible for manufacturers and other producers to sell their commodities at profitable prices. Without unprofitable government expenditure, then, industry must sell its products at a loss, with all the untoward and disastrous effects which follow such unprofitable business, namely, crisis, depression and unemployment.

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[3] Economist, Philadelphia, Pa.

[4] Economist, New Haven, Conn.

I wish to say that government expenditure in general is not unproductive. Insofar as it is unproductive, it is just as unprofitable and as undesirable as is unproductive private enterprise. The construction of a city hall, a city sewer system, a city water system or any other municipal undertaking is just as productive as is the private manufacture of steel rails, automobiles, boots and shoes, radios or anything else that is manufactured by private enterprise for sale to the public.

Our recent prosperity has been ascribed in large part to the fact that private business has succeeded in squeezing out many of the wastes and unproductive processes in private industry. It may be that there is a greater degree of unproductiveness in public expenditure than there is in private expenditure. If this be the case, the sooner this unsatisfactory and uneconomical condition is eliminated, the better for the public welfare. The notion that we must have "unproductive government expenditure" in order to put purchasing power into circulation and to limit the number of things to be bought with that purchasing power is the most arrant nonsense. Please note that services are just as real as are potatoes, oatmeal, shirts, socks, shoes and neckties. We cannot bridge the chasm between purchasing power and the quantity of things to be purchased by any such legerdemain as is proposed. The notion of unproductive public expenditure as a sort of sewer down which to pour the surplus of our products in order to relieve the congestion of the markets is absurd.

What is the relation, if any, between prosperity and prices? Can we have prosperity with falling prices? Our industrial history in the immediate past certainly indicates that falling commodity prices are not incompatible with business activity over a short period. The effect of falling commodity prices is, of course, to cut down profits and to slow down purchasing by the public. Industrial history indicates that falling prices, if continued over a long period, do bring business depression.

This does not say that there is any magic about a high price level. Prosperity is independent of any particular price level. One scale of prices is as good as another, and prosperity can exist at a low price level quite as well as at a high price level. It is not the particular price level that is important; it is changes in the price level which work havoc. If the price level moves upward, business is stimulated to greater activity, because business men are moved to secure the larger money profits obtainable. But this eager quest after money profits inevitably leads to extravagant expenditure and over expansion, which ends in a financial and commercial crash. When prices move downward, business enterprise is discouraged and depressed, with much resultant unemployment.

All studies of prices in relation to business activity lead to the conclusion that staple prices give the best conditions for real prosperity. It matters little or not at all what forces tend to change the price level. The effects of a change in the price level are practically the same, whether the price level is forced down by a contraction in the circulating medium or whether it is forced down by "over production" of particular commodities. Anything that disturbs the price level disturbs business conditions and imports useless and wasteful hazards into business enterprise, which is sufficiently hazardous in any case.

All our studies of prices and business activity indicate that it is possible, within limits, to control the price level and the purchasing power of the dollar. This can be effected and is now being done by means of the control of credit by the Federal Reserve system. When the price level falls, the Federal Reserve banks are in a position to grant larger volumes of loans to business men, thereby increasing the amount of circulating medium, raising the price level and stimulating business. When prices rise, credit is contracted, with the reverse effect upon prices and business.

Must prosperity be planned? Most certainly! Heretofore we have had planless prosperity as well as much profitless prosperity. It is absolutely essential, if we are to have real prosperity, that business expansion should be controlled and ordered. A prosperity which depends for its existence upon the employment of new machines and methods to take the place of thousands of workers thrown into the street because of these "economies" in production is a prosperity which has nothing to recommend it. Our business undertakings must pay their way. They can and must pay all the costs of production and a part of the costs of production are the costs of installing new machinery and new methods. Unemployment due to the introduction of new improved machines, methods and processes is one of the costs of production which business never has fully met in this country. Business has never been asked to pay the expense of unemployment. In fact, it has never been recognized as one of the costs of production. Only now is it just beginning to be realized by some economists and business men. If business is so productive that we must devise ways and means of wasting the surplus product in order to enable the producers to sell the remaining product at a profit, surely it is able to pay all the costs of production. If business is so productive that all the goods and services now consumed could be produced by one-half the establishments or in a four-hour day by all existing establishments, it is not necessary in times of depression or profitless prosperity to turn workless workers off to walk the streets in broken shoes, seeking the privilege of working at odd jobs, while eating the thin soup and the dry crusts of charity. Certainly prosperity must be planned, if prosperity is to be really prosperous, if we are to prevent booms with over employment, followed by crises and depression with under-employment and unemployment.

Some economists and statisticians are worried about the future trend of prices. Some think that prices must necessarily rise in the future because agriculture and the other extractive industries produce under what is called "increasing costs." As the population increases, it will become more and more difficult and costly, they say, to wring from nature the raw materials necessary for our subsistence and comfort. Others, on the contrary, hold quite the opposite view, that prices are destined to fall continuously, at least for a long period, because of the dearth of gold, and the consequent dearth of money and credit with which to purchase the goods and services produced in our economic society. There is really no reasonable reason why prices should either rise or fall over long periods of time. It all depends upon whether we have sense enough to plan, control and order our production and consumption processes. It is perfectly feasible to so regulate the supply of money and credit that the general level of prices will remain practically unchanged, and this is the desirable condition for permanent prosperity. The so-called law of diminishing returns does not make it inevitable that prices shall rise continually. Increased mastery over the forces and materials of nature enable us to produce at continually higher productive levels, and all of these improvements tend to reduce the time and labor costs of production. Neither does the alleged limitation and increasing scarcity of gold mean that we are inescapably subjected to the tyranny of a continually falling price level. It is perfectly possible, through the planning, ordering and control of industrial processes and improvements, to maintain a practically level price level, and thereby to escape the evils of rising prices, over expansion and crises as well as falling prices, depression and disruption in industry.

I was very much struck with one observation made by Mr. Williams. He advocates paying higher wages in order to cut down the costs of production. This sounds like a very Utopian pronouncement, coming from a representative of employers. I seriously doubt whether merely raising the wages of labor will bring about the increase in efficiency and prosperity which Mr. Williams suggests. It is certain that, in some instances, workers have not been paid a sufficient proportion of the total product they have worked to produce. It is also certain that when workers are put on part time or discharged from their jobs, their power to purchase commodities is greatly curtailed or completely destroyed. The result of this destruction of purchasing power has undoubtedly, in many instances, aggravated business depression, if it has not actually caused crises. It would be an interesting experiment if only employers in general would accept this view and set about to increase wages for the purpose of increasing the purchasing power of the community, and consequently, increasing prosperity.

Carl W. Scholz.[5] In view of the brief space of time at my disposal to discuss two such thought stimulating papers as those presented by Mr.

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[5] Assistant Professor of Economics, University of Pennsylvania.

Brougham and Mr. Williams, I have written down my comments, so as not to exceed my time allowance.

If my interpretation of Mr. Williams' arguments is correct it may be summarized thus; high wages paid to labor stimulate management to introduce labor-saving devices, which tend to increase industrial output. The larger product thus obtained may be distributed either by lowering the selling price of the product, keeping wage rates approximately constant, or by increasing the wages of labor, and keeping the selling price about the same. In either case the real wages of labor will tend to rise, but in the former case the benefits of lower prices will accrue to the consumer in general, while in the latter instance those who are actively engaged in productive activity will gain primarily. Furthermore, the high wages of labor will in turn stimulate management to employ more labor-saving devices with a view to increasing output at lower costs. In other words, management will stimulate itself to greater productive efficiency by paying higher wages to labor.

This very ingenious argument raises a number of interesting and pertinent questions. In the first place, what would determine the higher rate of wages paid to labor out of the greater product of industry? Would it be based upon the increased productivity resulting from the employment of labor-saving devices, or would it be left to management to raise the wages of labor voluntarily as it saw fit? Secondly, if the larger share in the product of industry going to labor in the form of higher wages, were not directly traceable to the greater productive efficiency of that labor, but rather to a keen sense of justice on the part of management, would this necessarily stimulate labor efficiency? Furthermore, if labor were to be replaced to an increasing extent by labor saving devices, by what process of selection would management choose from the increasing number of those looking for jobs, the fortunate individuals whom they would favor with higher wages?

It would seem that all these considerations must be borne in mind by those who would set aside the free play of economic laws in the apportionment of the products of industry and distribute them in accordance with high ideals of equity and justice. The issue raised by Mr. Williams is, strictly speaking, ethical rather than economic. It involves the question of the just distribution of the growing volume of product made possible very largely by scientific organization and management of modern industry, and emphasizes the importance of having a clearly defined purpose, a definite plan to guide the industrial activity of the nation.

In his argument favoring higher wages of labor with increasing production of industry, Mr. Williams points out that constant wages and lower prices will increase the real income not only of the wage earners but also of non-producing consumers. He illustrates his point by referring to a person living on a constant income of four thousand dollars, derived from an inherited investment. "If wage rates are held constant and improvements in manufacturing methods are distributed by lowering the prices of products, my four thousand dollars will purchase just as much of the products of industry and more of personal service." Why, may we ask, should the same money income and lower prices of products not make possible buying more of the products of industry?

Again, speaking of the increased industrial output in the United States during the past six or seven years, Mr. Williams makes the statement that "while productivity and the income of the United States have greatly increased in the last few years real wages have increased little, if any." There appears to be a contradiction between this observation and the statement made by Mr. Brougham, based on recent wage studies, that since 1921 there has been a thirty-six per cent increase in real wages in the United States. But these minor points of criticism should not cause us to lose sight of the fact that the paper presented by Mr. Williams reveals a certain idealism and a sense of justice in the conduct of industry which should be stimulating and inspiring to all who are interested in the problems confronting modern industrial organization.

Turning now to the paper read by Mr. Brougham, you were no doubt impressed, even as I was, by the striking array of illustrations cited to indicate that the modern tendency in the industrial technique and organization is to increase industrial capacity but to dispense more and more with the wage earner. If this tendency continues, and scientific management undoubtedly fosters its continuation, we may well ask, as does Mr. Brougham, how is purchasing power to be provided to the consumer with which to buy the ever greater output? Will industry have to stop periodically to give the consumer an opportunity to catch up? In other words, must alternating periods of industrial prosperity and of depression continue in the future as in the past, or can we so guide and direct productive activity as to be met by a continuous effective demand? Here again we are confronted with the problem of apportionment of the products of industry, i.e., the problem of wisely directing distribution and consumption.

With the decrease in the relative importance of labor as an active agent in production the free play of economic laws would tend to decrease his share in the products of industry derived from labor-saving devices and scientific management ultimately intended to meet the needs of the consumer. How and where is the consumer to obtain the necessary purchasing power to buy the products he needs? The liberal extension of consumer's credit, which has manifested itself in recent years particularly in installment selling, does not create new purchasing power for the consumer, as is popularly believed, but merely furnishes an outlet for and gives direction to the flow of goods produced. The actual purchasing power of those who have bought goods on credit must ultimately come from the product of the labor of those who have pledged their future control over goods, their future purchasing power, in exchange for present products. But where are the wage earners to obtain the necessary purchasing power in the future, unless they have the opportunity to earn it? There are grave disillusionments ahead for those who believe that the economic prosperity and progress of the United States depends solely upon increasing the quantity of production as much as possible, at as low costs as possible.

Both Mr. Brougham and Mr. Williams have indicated very clearly that management should not merely be concerned with increasing the physical volume of production by employing scientific methods, but should also study the problem of wisely directing the actual as well as the potential output of industry with a view to assuring its continued and equitable apportionment among the consumers. This is essential to our continuous economic prosperity, as it is reflected in our present standards of living, and to our progress, which may be called accelerated prosperity.

Shall the directing of the ever increasing volume of product, made possible by modern invention and labor-saving devices, be left to the play of competitive forces, or shall its flow be consciously guided and directed in the interest of the nation as a whole? A short time ago President Coolidge made the significant statement that the time had come to be planning for the future. If this holds true in the field of politics, how much more does it hold true in the field of industrial organization? In the very interesting book on "American Economic Life," of which Professor Tugwell is a co-author, we are told of the industrial planning as carried on by such industries as the Dennison Manufacturing Company, and the American Radiator Company. Planning for the future is not only carried on in many individual industries, but also in many municipalities. Nevertheless there is need for greater co-ordination and correlation of the industrial activity of the entire nation, "conservatively based on a careful study of normal demand." As Mr. Brougham has suggested, "We need more accurate gauges of production and consumption than at present exist." But ascertaining what industries are "overbuilt" and how much, what is their capacity beyond reasonable peak loads, and how long the peak load periods are, these and similar facts, valuable as they are, will not solve our problem. We need more than national fact finding commissions. We need an agency which, as a national advisory organization, will require the utilization of the facts found to promote the continuous prosperity and progress of the entire country.

A national planning commission, composed of a group of experts in various branches of industrial and managerial activity, could render valuable services in guiding the economic destinies of the United States. Its findings, based upon mature investigation and study of all phases of economic life, could be crystallized into a national "index of prosperity," the observance of which might be made a matter of obligation to those who control industrial activity, rather than a matter of legal compulsion.

Time will not permit me to enter into a detailed discussion of this proposal for a National Planning Commission. The possibilities of industrial guidance by such a commission may well be illustrated by referring to the prevailing condition in the automobile industry. A shortsighted policy of too rapid expansion on the part of one competitor might tend to destroy the very market which this competitor is seeking to obtain.

During the World War, as some of you may recall, Mr. Garfield, the then fuel administrator, issued a request to the people of the United States asking them to abstain from using their automobiles on Sundays, in order to aid in conserving the fuel supply. Practically everyone heeded the request. If under the stimulus of war-time patriotism we could be induced to listen to reason, how much more should we be willing to allow ourselves to be consciously guided in our peace-time industrial activities by the proposals of a National Planning Commission, with a view to assuring our continuous national prosperity?

R. G. Tugwell.[*] There are, in the papers under consideration, two widely differing topics. It is true that the question whether high wages contribute to prosperity would have to be taken into account in any rational plan which might be carried out; and that there is, therefore, a discoverable relationship between our two topics. But, in the way of approach to the general topic of planning adopted by Mr. Brougham, the question of higher or lower wages seems entirely irrelevant; for if the thesis of Mr. Brougham's paper is correct, we have no planning to do except in the strictly limited field of the currency. Mr. Brougham develops, of course, the familiar thesis of Messrs. Foster and Catchings that shortages in consumers' purchasing power block business activity and cause depressions. There is not time here to argue this question at any length, but an economist may interpose a demurrer to the general idea that any such simple formula can be depended on to govern the extremely complex phenomena of the situations which we briefly describe as prosperity or depression.

One might go even further, it seems to me, and say that there is an extremely academic cast to any discussion of prosperity, as a possible planned achievement, so long as industry is operated by the independent voluntary and competitive units which we call businesses. Planning, in a larger sense, is, in a free system of enterprise, very nearly an anomaly. It is, of course, true that through the combination movement, which has come on so rapidly in the last few decades, and through the growing associationism which characterizes business at present, there are growing up certain institutions which tend to tie together the business structure in a way unknown fifty years ago; and these processes of voluntary co-ordination may be said to be a step in the direction of planning. But it remains true that these are only a first step, a preliminary one, which creates the conditions out of which planning may possibly come in the future. This assumes, also, of course, that we think of the future in the social sense, which we presumably do if we are interested in so comprehensive a result as the elimination of depression or the perpetuation of prosperity. The long final step toward control remains utterly unattainable in a system of free competitive enterprise. Limitations on our traditional business voluntarism and freedom are an inevitable condition of control, whether public or private.

Constructive suggestions concerning the road to control are, of course, not in order here, but perhaps I may be allowed to say that without some more socially oriented management of the allocation of capital, and without some limitations on prices, not much can be done in the way of preventing the over equipment and over manning of industry. And these result in those pressures from excessive overhead costs and from labor troubles, which cause us to lose our heads. The lack of these controls is our most serious barrier to an ordered productive program. Furthermore the traditional governmental attitude toward business must somehow be revised. The notion that the restoration of competition is either feasible or desirable in a system whose most obvious characteristic is a tendency toward co-ordination is inexplicable except on the assumption that our affections cling more amorously to the institutions which we inherit than to the necessary arrangements which seem to grow out of our advancing technique. It is a curious fact that business men as well as statesmen prefer our present governmental policy to entering upon any active program looking toward revision.

There is a good illustration of their illogical attitude in Mr. Williams' paper. It seems true that, aside from the admitted gains to workers which would come from increased wages, the technical achievements which would be forced by the processes of raising them, would leave business in a sounder situation than before the increases were made. If this is true, and Mr. Williams seems perfectly certain that it is true, it is not at all clear to an outsider why it should not be done. Or is it true that business men are not, as they are supposed to be, really pursuing profits, but are rather managing their businesses for the protection of an existing rate of wages? Are they more concerned that nothing should be disturbed than that something should be disturbed which would benefit not only workers but themselves? There is no possible logical answer to this riddle. The curious attitude which is revealed must be traceable to the lack of co-ordination and planning, a lack even of the idea of a general plan for industry. Not all businesses at any one time are presumably in a technical position which would make it possible to double wages and still continue to operate, and we have no means of putting pressure on those businesses which could do this and still prosper. We therefore assent to waste and to failure to pursue a program of admitted progress, because the whole machine is geared to the pace of the least efficient. This is one of the implications of Mr. Williams' paper which is not very clearly faced. He comes at the end, it is true, to a recognition of the need for a policy but makes no suggestions for practical first steps. If one wanted to be humorous he might suggest that employers who feel as Mr. Williams does might band themselves together and allocate a part of their surpluses to a subsidy for the American Federation of Labor. I say this because the general wage doctrine which Mr. Williams states is an orthodox one for the Federation. It has been stated again and again, in the most unmistakable terms, in official resolutions and in speeches and articles by their executives, that the progressive increase of wages would force efficiencies. Some business men see this as well as they do, but no one seems to see that what stands in the way of the application of this pressure is the very system of business itself. This field of inquiry both groups alike are extremely reluctant to enter, but they must enter it if they are to discover any workable means for the objectives which they have in common.

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[*] Professor of Economics, Columbia University.

There is one other question raised in Mr. Williams' paper which seems to me worth considering seriously: whether—granting that the resulting pressure will result in increased efficiency and lowered costs—it is better to create this effective pressure by raising wages or by lowering prices. Mr. Williams makes a persuasive plea for higher wages. The chief point which he makes is that higher wages would go to his own employes and therefore would be effective as incentives to increase production and generally higher morale. This is perhaps the crucial consideration for an individual employer; but if we look at the situation from the point of view of a revised social policy, which, as I have said, seems to be an implication of the general argument he makes, it can be argued that lower prices will be more effective for the desired purpose than increased wages. For lower prices *are* higher wages—real wages. Of course the gains do not go to the specific group included under one management, and so the incentive value is lost, but there are certain other gains. Lowered prices tend to radiate, as reduced costs, throughout the whole productive system and so to create a heightened purchasing power among consumers, greater activity in production, more employment and greater stability. This is admittedly more true in the market for staple goods than in that for luxuries, but this is the area in which social welfare is most affected. On the whole, from the strictly social point of view, I think it can be argued that lowered prices are more desirable than higher wages, if it is admitted that either is possible under a given situation.

This again is one of those fields in which it seems to me that a scheme for national planning is essential to any general balance of forces which would be nationally effective. It has always been a source of great regret to me that the experiment which was undertaken during the war by the War Industries Board was not continued into peace times, for I feel that there were in it the genuine beginnings of a national plan, the only one which our jealous guardianship of antique institutions has permitted. The only other comparable experiment of which I know, is that being tried in Russia at the present time. This is not the place to attempt any discussion of national planning, but I cannot leave even so brief a discussion of the subject without saying that, in her National Planning Board, Russia may possibly have devised a scheme which we shall find it necessary, as time goes on, to study for its possible applicability to our system in the creation and perpetuation of a general national prosperity.

Closure

H. B. Brougham. It seems generally to be agreed by the gentlemen who have discussed my paper that a real problem exists, how to establish adequate consumer purchasing power for the full capacity of the nation's industry. I am especially relieved that no one has raised the outworn "barter" argument, that production in a money economy can, during the short-term fluctuations of business, of itself finance consumption. Every business man and every management engineer is constantly confronted with the disturbing fact that production in general does not provide its own outlet for anything like the full capacity of industry.

Further, those who have criticized details of my argument freely admit its thesis, that prosperity must be planned. I would subscribe to most if not all of the observations of Professor Tugwell and Mr. Mallery. Professor Scholz will be gratified to learn, I am sure, that the Pollak Foundation in its forthcoming book "The Road to Plenty," by Messrs. Foster and Catchings (which is now in the hands of the binder) calls for the establishment of a Federal Prosperity Planning Board. The authors suggest that this Board, if and when constituted, shall gather and measure the data relating to consumer income, laying hold of all existing information, supplementing it and advising the Government how to use the data as a guide in all fiscal matters. The Board would be clothed with power to determine when, and to what degree, expenditures should be made under a Congressional policy of long-range planning of public works. Through its own acts and its published statements, influencing State and municipal authorities and the business community, it might provide private business with necessary leadership.

When the indexes show the need of re-enforcing consumer demand, which the Government cannot meet with added expenditures, the Prosperity Planning Board would be empowered to occasion such expenditures out of funds already accumulated, or out of loans which involve an expansion of bank credit. For it is manifest that a declining price level can hardly be rectified by aid of Government expenditures, if all the money which the Government spends is collected as taxes in the same period. In reply to Dr. Meeker, I would call attention to this passage of the same book (p. 193):

> At most times, perhaps at all times, the needed expansion of money actually will come from other sources, because private industry will be stimulated, under our policy, to make capital expenditures. And that is the chief way . . . that consumers do obtain the needed flow of money when times are good. Still, we can never be sure whether the flow of income from this source will be too large or too small. The whole project is so very important that the Government should stand ready to borrow money if needed for the purpose.

I must apologize to Dr. Meeker for furnishing him with a rather indistinct carbon copy of my paper. Otherwise he would have seen that it emphasizes this view, and that the term "nonproductive," applied to a city hall or similar nonmanufacturing public works, was severely limited to works which "when completed, could not be used for the further production of intermediate or consumer goods." Of course, the wages and money spent on materials for such works would flow into a falling market as new purchasing power, without further increasing the surplus of consumable goods that occasioned the decline, and would tend to rectify the price level and ward off depression. I freely grant that, in other senses, public works are useful and productive.

Dr. Meeker calls attention to the fact that the Foster-Catchings diagnosis squares with the familiar equation expressing the quantity theory of money. I am glad that this formula is not new or original with me. Procrustes, innkeeper and owner of the famous bedstead, had his own equation. He might have remarked to the traveler who suggested that the bed be made to fit the tall night's lodger rather than that the lodger be fitted to the bed by the Procrustean method of sawing off his legs, that the traveler's idea was not new or original. In very truth, Procrustes himself had been bringing about, in his own way, the equation of bed and lodger right along. So whatever merit my paper may lay claim to is in its proposal to reverse the customary and universal practice of restricting productive capacity, surgically, to existing purchasing power, whatever that may happen to be. The other way about might save the legs of business. It is at least time to consider whether the addition of adequate purchasing power may not prove a less painful method of establishing Mr. Meeker's equation.

If this proves practicable, then Mr. Wolf's advocacy of improved quality standards can be measurably met. For if the community can be supplied with purchasing power sufficient to buy the whole output of industry working at capacity, its increased real income will inevitably become manifest in demand for goods of better quality in every department of trade. It is common observation that this is the natural result of increasing one's income. Public works—highways, parks and playgrounds, schools, waterworks and all public improvements are in a real sense quality goods. The new expenditures would thus bring opportunities for which Mr. Wolf as a management engineer longs, by demanding with the pursuasive power of the buyer, goods of better quality.

During the past six years we have witnessed an example of this quality demand by the whole nation, which has experienced a notable advance in real income. But while the per capita real income has increased by thirty-six per cent, Professor Scholz is incorrect in inferring that real wages have made an equal advance. Professor Paul H. Douglas finds that the increase in real wages—on which purchasing power for the nation's output so largely depends—was in 1926 only twelve per cent over 1921. I believe Mr. Kuvin is right in saying that the relatively small upper income groups have absorbed the preponderant share of the recent additions to real income. It does not help the case for adequate sales in industry that the richer classes consume only a small part of their share, and do reinvest the major part of it in productive works. That is the very reason why industry today, without the compensating factor of credit outlays which I have indicated are well within its reach, lacks the necessary consumer buyers to keep running at a measurable approach to capacity. The visible accretions of idle equipment show that the piled-up savings of the nation are not yet being rightly used.

Henry H. Williams. Mr. William Green, in discussing my paper expresses the opinion that I have given endorsement to the wage policy of the American Federation of Labor. I would prefer to put the matter another way. I would prefer to feel that there must be some fundamentally just and advantageous policy which when seen clearly and dispassionately will of necessity be the same whether viewed through the eyes of Labor, Management or Capital. Much more significant than any agreement of mine is the fact that great financial interests as voiced in a recent article published by the Guaranty Trust Company of New York are coming to view the matter of high wages with a kindly eye.

I am bitterly disappointed that the other gentlemen who discussed my paper had nothing whatever to say upon these major conclusions of mine. Perhaps being all economists they felt a certain hesitancy about arising in a meeting of a management society and agreeing with me that the usual stand of management upon this wage question is a stand which will not lead to prosperity for the country in the years to come.

I expressed my belief that Management is of necessity concerned with making the largest possible profits in the very immediate future. The urgency to do this is usually so great, and the fear of competition is so keen, that wages are not increased by Management with any degree of alacrity. I reached the conclusion that the continued and increasing prosperity of this country depends upon the widespread distribution of the ever increasing products of industry. But Management stands squarely athwart this path to prosperity. It is to Capital, as divorced from the immediate concerns of Management, that we most properly should look for help in deciding this conflict of interests between Labor and Management. Concerning these conclusions of mine, Mr. Green has made no comment.

If there had been any agreement with this conclusion I had hoped that the Taylor Society might then have discussed the propriety of passing some resolution, making clear the dilemma in which Management finds itself placed, and calling upon our very great friends, the capitalists, to consider what kind of wage policy will be best for the United States in the future, and to lend their influence accordingly.

Spring Meeting—Time Study—May 7 and 8—Detroit-Leland Hotel—Detroit, Mich.

Notes on Economic and Social Surveys[1]

Based on Seven Reconnaissance Surveys of National Problems

By EDWARD EYRE HUNT[2]
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IN DECEMBER, 1920, when Mr. Herbert Hoover, as president of the American Engineering Council, named the Committee on Elimination of Waste in Industry, he suggested the methods to be followed as well as the general purpose of the study. He intended the waste survey to be an economic reconnaissance—a preliminary examination of the subject with reference to its general character on the analogy of topographical and mining reconnaissances. In our talks at the time he explained that his own professional work had dealt very largely with what he described as the exhumation of the corpses of defunct mining companies, an examination of the maladies which accounted for their demise, and a listing of those maladies in the order of their importance. It was then his task to bring the corpse to life by treating the maladies; the larger ones first, the smaller, last. The methods which he proposed for the Waste Report, then, were: first, a reconnaissance rather than an exhaustive investigation; second, a definite judgment as to the relative importance of the various industrial wastes; third, suggestions as to the most practical lines of attack.

From these suggestions as the germ, the committee developed an elaborate plan and budget. The reconnaissance field work actually began on March 21, 1921, and ended on May 15. A summary of the report was released on June 3, ten weeks after the field work began. Such drive and energy, I think, were then without a parallel, and the survey of Waste in Industry will doubtless remain for some time a striking example of economical expenditure of time and money with large returns.

A survey means viewing, examining or inspecting in detail, especially for some specific purpose, while research means critical or scientific inquiry. Both elements may be found in an economic or social study. The method to be followed will be determined by the relative importance of the problems which can be solved by a survey as compared with those which will require research. The reconnaissance is by definition a preliminary examination or survey. Arthur M. Wellington in his classic work on Railroad Location points out that "a reconnaissance must not be of a line, but of an area." A reconnaissance in the economic or social fields, as I understand it, is intended to bring together into a sharp focus knowledge which is blurred and scattered, to appraise it, and finally to present it as a basis for public or private policy-making, or both.

The advantages of the reconnaissance method are obvious. If well managed, it is rapid and inexpensive. It can provide results at a time when they are most needed. On the other hand its disadvantages are equally obvious. Unless well managed, it may be wasteful of time and money. A competent staff is hard to recruit for intensive and brief employment. If the scale of the investigation is large, the problem of unifying and coordinating the results of the various investigators is considerable. But in spite of these disadvantages the method will doubtless remain one of the most important by which public and private policy is determined. I suggest that the time has come to appraise it critically, to standardize its factors, and to take up in earnest the possibilities of developing a genuine science in the conduct of economic and social surveys.

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[1] Paper presented at a meeting of the Taylor Society, New York, December 8, 1927.

[2] In the preparation of these notes I am particularly indebted to L. W. Wallace, Executive Secretary, American Engineering Council; Stanley Farwell, Vice President, the Business Research Corporation; Frederick L. Hoffman, the Babson Institute; W. A. Bassett, Massachusetts Institute of Technology; Lockwood, Greene & Co., Inc.; F. Stuart Fitzpatrick, the Chamber of Commerce of the United States; Morris L. Cooke, Consulting Engineer; Maurice Holland, Director of the Division of Engineering and Industrial Research, National Research Council; Harold G. Moulton, Director, Institute of Economics; W. J. Donald, Managing Director, American Management Association; Henry Bruere, First Vice President, Bowery Savings Bank; Professor Edwin F. Gay of Harvard University; Professor Wesley C. Mitchell of Columbia University; Professor James Ford of Harvard University; H. S. Person, Managing Director, Taylor Society; Trevor Bowen, Controller, Institute of Social and Religious Research; Mary van Kleeck of the Russell Sage Foundation; Frederick W. Willard, Personnel Director, Western Electric Company; Mark M. Jones, Consulting Engineer; Francis Walker, Federal Trade Commission; David White, U. S. Geological Survey; Horace B. Drury, United States Shipping Board; and John M. Gries, Frank M. Surface, Ray M. Hudson, Mortimer B. Lane, Thomas R. Taylor, Axel H. Oxholm, Dudley F. Holtman, George C. Wathen and Edmund J. Devlin, of the United States Department of Commerce.

For detailed examination and special comment I have selected seven reconnaissance surveys of national problems: (1) Waste in Industry, (2) Coal Storage and (3) Safety and Production, all three by the American Engineering Council; (4) Business Cycles and Unemployment and (5) Seasonal Operation in the Construction Industries, both by the President's Conference on Unemployment; (6) the Anthracite Coal Industry and (7) the Bituminous Coal Industry, by the United States Coal Commission.

Their differences at first glance seem more striking than their similarities. Three of the studies were by private bodies; two by a mixture of public and private bodies; two were by the Federal Government. The genesis of the studies varied. The procedure by which the general idea was brought to a practical proposal and finally was financed and set in motion differed radically. Finally, the period of time required for the reconnaissances in question, if we include all the steps from the recorded inception of the idea to the official publication of the results, varied from eleven months to thirty-two months. The sums spent range from $11,000 to $580,000, and the staff employed from a dozen to five hundred.

In round figures the report on Waste in Industry cost $40,000; that on Coal Storage $11,000; that on Safety and Production $27,000; Business Cycles and Unemployment, $55,000; Seasonal Operation in the Construction Industries $20,000; and the various investigations of the United States Coal Commission $580,000. Large contributions of unpaid services were made to all seven studies.

Our first step is to compare and to endeavor to standardize the factors, but this seems to be a formidable task because of the number of varieties. It is only when the studies are divided into their functional steps, and these carefully analyzed, that anything like comparability emerges.

On the bar chart on page 25 I have divided the studies into eight general stages, indicating the time spent on each:

"A" is the presentation of the idea and the preliminary development, including financing.

"B" is the designation of the committee or commission to handle the survey.

"C" is the preliminary organization and determination of the method to be followed.

"D" is the organization of the staff, the preparation of questionnaires, etc.

"E" is the field or laboratory work.

"F" is the statistical compilations and analysis of field or laboartory reports.

"G" is the drafting of the general report.

"H" is the printing of the complete report.

There is over-lapping in these stages and the classification is not very satisfactory, but it is at least suggestive. It suggests to me, for one thing, that accounts of expenditures should be kept according to a functional plan. In connection with one of the studies—Safety and Production—I have a functional analysis. For the others I have only the usual post mortem statements, displayed on the pie chart on page 27.

A cursory examination of the bar chart shows certain striking similarities and dissimilarities in the studies conducted by the three organizations listed.

Studies by the American Engineering Council

Taking up those by the American Engineering Council, the planning steps "A," "B," "C," and "D," and the field or laboratory work "E" are strikingly similar in the studies of Waste in Industry (1920-21) and Coal Storage (1923-24), consuming about the same amount of time, namely, six months. The length of time which elapsed between submitting the reports to the printer and the actual appearance of the volumes—step "H"—are also similar, viz. three months. But "F" and "G" are strikingly unlike, and these are the steps which cover statistical compilations and analysis and drafting of the reports. "F" and "G" took less than four months in the Waste Survey; nine months in the Coal Storage study.

The bar chart was drawn before the data were available for the study of Safety and Production (1925-27). The planning stages of this study were very deliberate, "A" requiring nearly nine months.

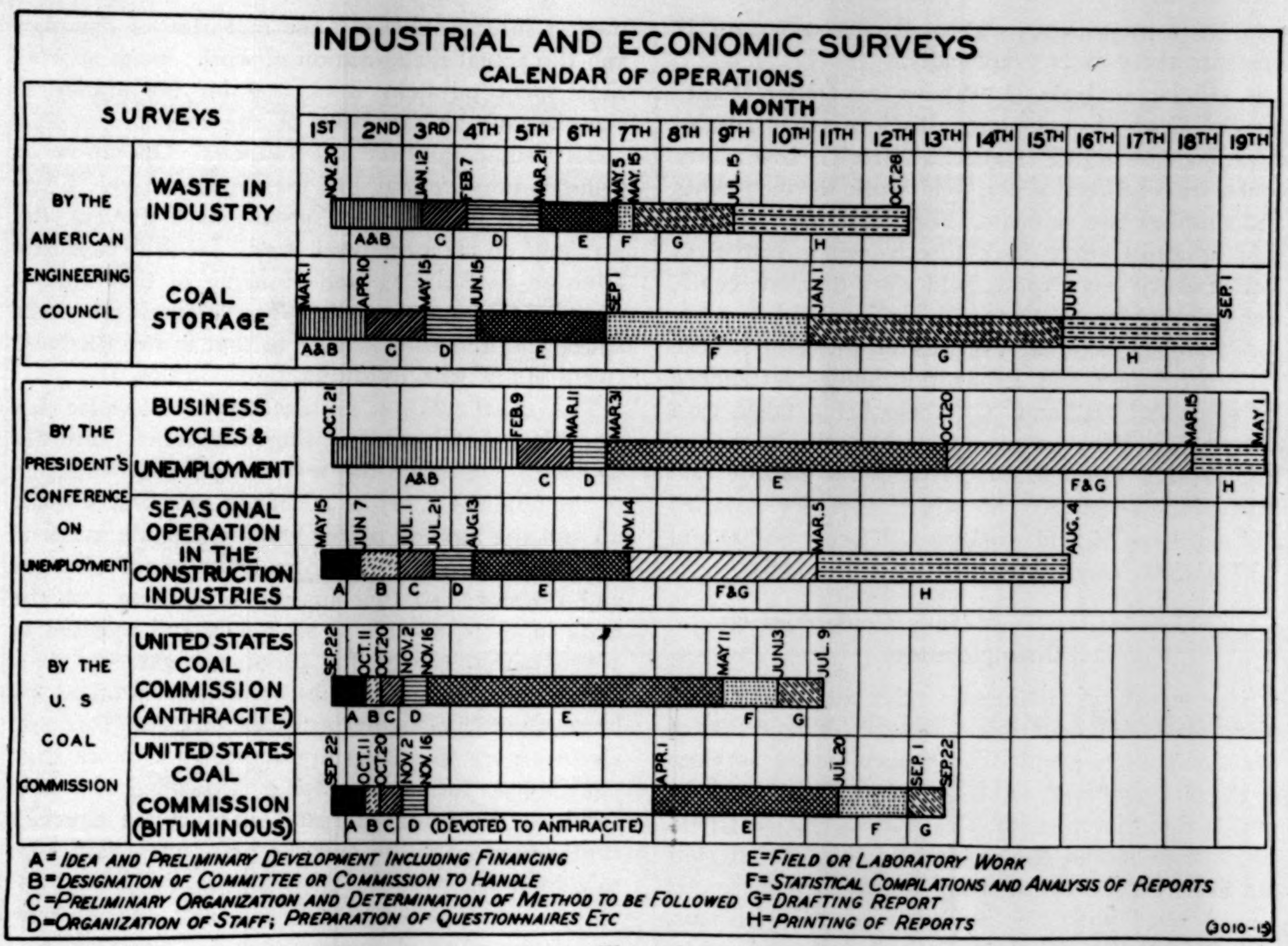

Figure 1

"B," "C," and "D," on the other hand, are strikingly similar to those steps in the surveys of Waste and Coal Storage. "E" took two months in the survey of Waste, two and a half in the Coal Storage study, three in the safety study, and "F" and "G" are like similar steps in the study of Coal Storage—very much longer than these same steps in the study of Waste. "H" in safety and Production is seven months. It is three and a half for the Waste Report, three for the Coal Storage Report.

All three studies relied upon questionnaires. The study of Waste in Industry followed a rigid predetermined method for ascertaining what industrial waste is and for appraising its importance. The questionnaires were filled out in the field by some fifty trained investigators. Steps "F" and "G" would have been much longer without this rigid and elaborate preliminary work. The questionnaries for the Coal Storage study were filled out by plant executives. Local committees oversaw the work and returned the papers. Questionnaires were made use of in the Safety and Production study. All three reports were made by special committees. The Waste Report was the work of an autonomous committee devoting itself exclusively to one task; the Coal Storage and Safety and Production studies were handled in substantial part by the staff at the headquarters of the American Engineering Council where a variety of important routine activities necessarily occupied a prominent place.

A rough analysis of the study of Waste in Industry shows that thirty-three cents of each dollar went to administration, sixty-four cents to salaries and expenses of field workers, one cent to travel, two cents to printing. The pie chart on page 27 presents these facts graphically.

A similar analysis of "Where the Dollar Went" for the Coal Storage study discloses that administration (including statistical work) cost sixty cents, travel fifteen cents, field work thirteen cents and supplies twelve cents. For Safety and Production administration took fifteen cents, statistical work twenty-seven cents, field work fifty-one cents, and printing seven cents.

A rough functional analysis of the cost of the study of Safety and Production shows no charge for steps "A," "B" and "C," these being taken care of by the permanent organization of the American Engineering Council. "D" cost about $4,000; "E" cost $14,500—$11,500 of which was for salaries and expenses of field workers—"F" cost $6,000 and "G," $1,500. Committee expenses were $500.

Studies by the President's Conference on Unemployment

The report on Business Cycles and Unemployment (1922-23) undertaken by a sub-committee of the Conference, profited by the voluntary services of the National Bureau of Economic Research, Inc., under the direction of Dr. Wesley C. Mitchell, which contributed the services of the Bureau staff for a period of six month. Additional personnel was secured with the Bureau staff as a nucleus, and from February 20, 1922, until August 1, when the fact-finding report of the Bureau was submitted to the sponsoring sub-committee, the time consumed was a little under six months. The chart, however, shows that period "E," field work, did not end until October 20, because of a change in policy on the part of the sub-committee and its desire to secure additional material. This change in policy also affected steps "F" and "G," the period devoted to statistical compilations and analyses of results and the drafting of the final report.

A summary of the recommendations was released for publication on April 2, 1923, the whole report appeared on May 3. The period devoted to publication—"H"—represents a practical minimum because the manuscript was in such excellent shape that the number of proof changes was slight. In this respect, as the comparison on the bar chart shows, the study of Business Cycles was a model.

Seasonal Operation in the Construction Industries (1923-24), a smaller investigation, shows a shorter interval between the inception of the plan and the actual inauguration of work; much shorter time spent on field work and on the statistical compilations and drafting of the report.

The sub-committee on Seasonal Operation in Construction profited, like the Business Cycle Committee, by its ability to secure as a nucleus the services of an organized staff, in this case the Division of Building and Housing of the Department of Commerce. Temporary employes were added and a method similar to that in the Business Cycle study was followed.

The chart shows an excessive allowance for step "H," that is, for printing the report. In order to keep to schedule the manuscript was submitted to the publishers before all of the data was worked up and the anxiety of the staff to include material tardily received resulted in large proof changes and revisions, so that instead of getting out the book in three months it took five, and resulted in a substantial charge for proof changes.

In both cases the sub-committees profited by large contributions of services. In the Business Cycle report this certainly represented more than one dollar for every dollar expended on paid services. Both governmental and private agencies contributed liberally, and the plans were laid with this in mind.

Both studies were budgeted and the budgets were adhered to, the only important deviation from the estimates being a final and unexpected contribution for special publicity in connection with the appearance of the Business Cycle report.

An analysis of where the dollar went in the case of these two studies is shown in the chart on page 27. In the Business Cycle study just fifty cents went to field work—thirty-nine cents in salaries and eleven cents in expenses—while statistical compilations and analyses (two items) account for thirty-eight cents, equipment three cents and administration nine cents.

Studies of the United States Coal Commission

The United States Coal Commission was a creature of Congress, a Governmental agency named by the President, with its activities defined and its existence limited to one year from the passage of the act on September 22, 1922.

It began with an appropriation of $200,000 and instructions to study a wide variety of subjects

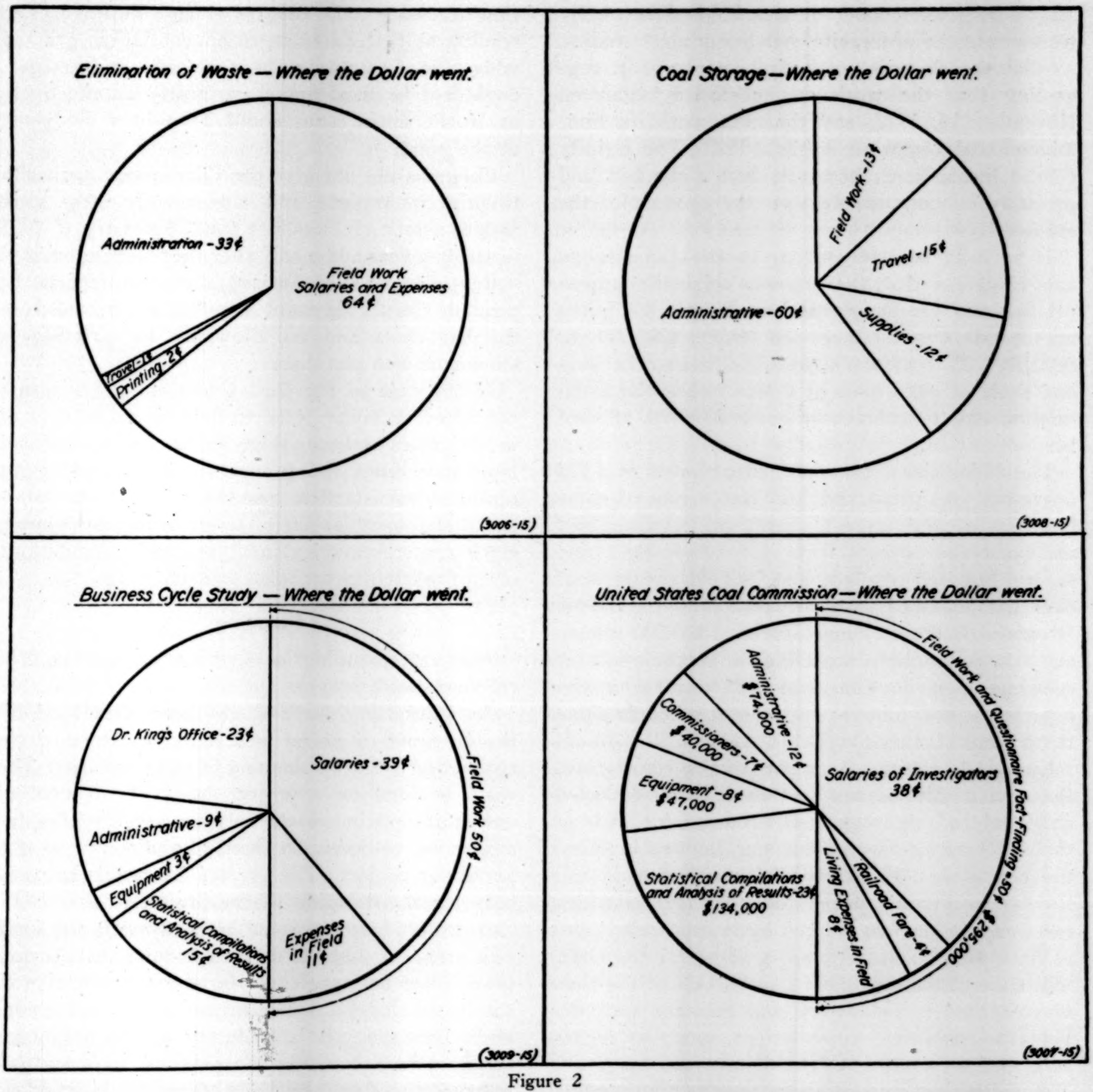

Figure 2

and to make a special report on a variety of topics. Beginning its operations on October 18, 1922, it was instructed to make a preliminary report to Congress and the President on January 15, 1923, a report on the Anthracite industry on July 1, 1923, and a final report on September 22, 1923. In accordance with the instructions of Congress it set itself to write a coal encyclopedia in less than a year, with particular emphasis on matters which might conceivably lead to a formulation of a national policy, both administrative and legislative.

As the chart shows, the entire period of organization, October 11 to November 16, was exceedingly short. Organization and re-organization continued as the work went on.

Faced with the fact that a preliminary report was expected two and a half months after the members of the Commission first met, the planning stages were telescoped. It was impossible wholly to separate the anthracite and bituminous studies, so that the chart is not entirely accurate in suggesting that the work on anthracite began on November 16, 1922, and that the work on bituminous coal began on April 1, 1923. The rigidity of the instructions, however, had a marked and probably deleterious effect on the conduct of the studies.

It at once became evident to the Commission and Congress that the amount originally appropriated was insufficient and in March, 1923, the appropriation was increased from $200,000 to $600,000. This meant a profound change in plan and scale of operations at a time when the Commission had served nearly one-half of its allotted life.

The Commission examined cost reports of 1,752 operators and profit and loss statements of three hundred of the largest operators; it assembled and analyzed reports from 424 wholesalers and several hundred retailers, and its field agents went over the books of both wholesalers and retailers. It measured the economic status of 660,000 miners and their families, including a retabulation of schedules from the Census of 1920 for all men who reported as coal miners; on the cost schedule alone there were seventy-five items. On the investment schedules 276 items. As a part of the inquiry into the cost of bituminous coal there were collected and analyzed eight quarterly returns for each of the 2,399 operators and this one inquiry involved the compilation of nearly 20,000 schedules. And there were literally dozens of other studies which the Commission was obliged by law to make.

With these facts in mind, a glance at the chart will show that an excessive proportion of the time was devoted to field work and that the time devoted to statistical compilations, analyses of results and the drafting of the reports was too short. This condition was foreseen by the Commission and deliberately adopted. The work had to end on September 22, 1923, and the necessary information required by Congress could not be secured in the opinion of the commission in an interval shorter than the time shown in "E." The digestion of the material suffered greatly.

Congress in passing the bill which established the United States Coal Commission made no careful examination of the size of the task set and the sum necessary to do the job which it outlined. The result was that an enlarged appropriation, granted when the Commission was already middle-aged, could not be used anywhere nearly as effectively as if the entire sum could have been budgeted at the start.

Congress did not give the Commission authority to print its reports, and consequently these were frozen assets. It was not until February 6, 1925—nearly a year and a half after they were submitted—that Congress authorized that the reports be printed. On this account step "H" is omitted from the bar chart and no allowance for printing is shown on the pie chart.

In the case of the Coal Commission fifty cents out of every dollar went to field work, salaries of investigators taking thirty-eight cents, railroad fares four cents, living expenses in the field eight cents. Administration cost twelve cents, the salaries of the commissioners, seven cents; equipment, eight cents; statistical analyses and compilations of the results, twenty-three cents.

Planning

Adequate planning is of primary importance in reconnaissance surveys.

An interesting method has been developed by the Institute of Social and Religious Research in connection with the planning of social surveys. The work is done on a project basis, the control of operations resting in the technical staff of the Institute in co-operation with the director of the particular project. The project director is engaged only for the duration of the project.

A project first comes to the Institute in the form of a proposal, and the by-laws require that "a proposal when first presented for the consideration of the Board shall be in the form of a proposal synopsis." This synopsis is made out by the proponent or the person bringing the proposal to the attention of the Institute, and there is a standard questionnaire to proponents of proposals which is handed to the proponent and acts as a statement of his case. In answering this questionnaire the proponent shows to a large extent how far he has thought through his project.

The proposal is submitted to the Directors of the Institute, who look at it from the point of view of the desirability of the undertaking irrespective of the details of cost, etc., and if they think favor-ably of it they refer it back to the technical staff of the Institute. The staff compiles a report which might include all of the items contained in the standard form of proposal reports and makes definite recommendations to the Board of Directors for accepting or rejecting the proposal, going thoroughly into the several statements contained in the proponent's questionnaire or "synopsis" and particularly into the method involved and the funds necessary to do the work. The proponent's failure to answer any of the questions contained in the original questionnaire may or may not be important.

When the proposal is accepted and the project director is decided upon—he may or may not be the proponent—the Controller of the Institute drafts a contract which the director is required to sign, the terms of which cover among other things the purpose of the study, term of employment, salary, allowance for expenses, reports and accounting, the engagement of the members of the project staff and reservation to the Institute of rights of publication as well as property rights in all material and data brought together during the work.

When the director has been engaged he makes a detailed summary outline of procedure for the study. With the outline a detailed budget is prepared. There is careful supervision of the accounts and of every stage of the work by the technical staff.

The experience of the Institute is that these planning steps should take from two weeks to several months.

The seven reconnaissances which we have been examining illustrate a wide variation in time spent in the planning stages. Nothing so detailed as the method developed by the Institute of Social and Religious Research was worked out in connection with these studies. A synopsis was prepared, however, for all but the study of Waste in Industry, and in the case of that study the careful questionnaire and evaluation sheet represented most meticulous planning on the part of the committee in charge.

It may be contended that where the problem is one about which little is known and research is necessary, the preliminary plan necessarily must be tentative and uncertain; it is not known precisely what will be discovered and plans must be adjusted to shift emphasis to points where support is needed, and so there must be a margin for modification of the plan after the work is undertaken. But in general a reconnaissance can and should be planned in detail and with a definite budget and calendar of operations.

In the first place there should be a brief explanation of the purpose of the study which is to be undertaken, together with a statement of the major sources of information and the method to be adopted. It is necessary to determine whether the investigation depends primarily on: (1) public hearings, (2) personal investigation, (3) estimates from correspondents, (4) questionnaires filled out by correspondents, (5) questionnaires filled out by field investigators.

In the second place the calendar of operations should be planned in sufficient detail to show what time is to be devoted to the development of the idea and method; when the preliminary organization is to begin; when the field organization or corps of investigators is to be formed and when it should complete its work; when the field work shall begin and when it should end; when the drafting of the report is to begin and when it should be completed; when the manuscript is to be submitted and when the volume or volumes are to appear.

In the third place a budget of the amounts to be expended on the various steps should be made to show functionally where the money is to go and controlling accounts should be set up for each step to make sure that the estimates will not be exceeded without due reason. This budget should show how much is to go into preliminary organization work, how much into the field or laboratory work, how much into the preparation of the report or reports, and how much into the various items connected with the publications.

Organizing

One of the gravest problems connected with the organization of a reconnaissance is the question of personnel. Trained and able investigators are hard to find, and when found they are hard to pry loose for temporary employment. For persons able to manage investigations and to recruit a staff, one must turn to the government service, the universities and business colleges, the research foundations and institutes, trade associations, or similar bodies.

An economist or engineer who is engaged in academic work can rarely get leave of absence for more than a year. Part time service is often the best that is obtainable. Even in small undertakings only a few first-rate persons can be had, while for large undertakings the personnel problem is critical. Demand is greater than supply.

An organized and well trained group is best as a nucleus at least. Such a group possesses *esprit de corps,* the habit of team work and channels for communications among its members. The members recognize the capacities and limitations of each other. An attack on a new problem can in consequence be made more quickly and with greater unanimity. On large investigations a nucleus or nuclei of organized groups is practically a necessity.

In the case of the United States Coal Commission the experience of which has been previously cited, a number of investigators of labor questions was secured from the Wharton School of Finance of the University of Pennsylvania, under the direction of the Professor of Geography and Industry. Other groups of investigators were drawn from the Federal Trade Commission, others still from the Institute of Economics of Washington, D. C., and a firm of investigators trained in governmental studies, who engage in private practice in Washington, was drawn on for students of living conditions in the mining towns. The Business Cycle personnel was grouped about the National Bureau of Economic Research; that of the Seasonal Operation study about the Division of Building and Housing of the Department of Commerce, the Coal Storage and Safety and Production studies about the permanent organization of the American Engineering Council.

Regarding the relative desirability of a large staff working at top speed or a small staff working more slowly, the character of the problem, of course, will determine. On a reconnaissance where the collection of a large amount of raw material is vital to the investigation a large staff working rapidly has many advantages. Of course it is impossible for such a staff to go back and retrace its steps, so that the questionnaires or the staff instructions must be quickly standardized and must be such that the directors and the sponsoring committee are willing to abide by the results. With a small staff shifting methods may not be serious.

Questionnaires

The dependence upon questionnaires is striking in these surveys. The Waste reports were filled out by field investigators; the Coal Storage and Safety and Production reports were filled out by plant executives; an important part of the Business Cycle study was developed by means of questionnaires filled out by correspondents and a similar method was followed in the case of the Seasonal Construction study. The United States Coal Commission used questionnaires filled out by field agents as well as those filled out and sworn to by coal operators.

Experience plainly shows that wherever a questionnaire is used a preliminary test should be given it. The sampling method almost always results in improvement in the text of the questionnaire and in the method to be followed in using it. If a small group cannot answer the questonnaires, a large one cannot. Questionnaires returned to headquarters by field agents or correspondents should be tabulated immediately in order to develop the weaknesses and errors in the method. To hold them for future tabulation may mean that agents will have to go over the entire field again or that a single agent who has misunderstood instructions will have to return to the field.

Costs

The pie chart of costs on page *27* tells its own story. In the Waste report sixty-four cents of the dollar went to field work, both salaries and expenses. In the Business Cycle study fifty cents went to these items. In the work of the United States Coal Commission fifty cents went to salaries of investigators, railroad fare and living expenses in the field. In the study of Safety and Production fifty-one cents went to these items. Apparently about one-half of the expenses of such reconnaissance as these will go to the accumulation of data in the field; the balance will go to administrative expenses, equipment, statistical compilations and analysis of results, printing expenses and similar items.

Conclusion

In order to keep this paper within bounds, I shall omit consideration of a number of fascinating problems such as the organization and direction of advisory committees, the relation of such committees to the staff of investigators, the role of experts, the relation of fact finding to policy-making, the dissemination of the facts found and the policy proposed, checking up on the results of surveys and reconnaissances and evaluating them.

One problem I should like to suggest. Is it not probable that an analysis of other types of economic and social surveys, similar to this analysis of seven reconnaissances, will reveal comparable factors and various ways by which methods can be improved? Is it not probable that research is also susceptible to such analysis?

Fact finding is the fashion. Since the World War there has been a marked increase in the public appetite for scientific information and in the sums available for research and surveys. Our public policy-making is frequently preceded by some type of investigation conducted under public or private auspices; commercial and business policy-making, too, is largely conditioned by the results of preliminary surveys of the facts. It has been estimated that in this country more than $200,000,000 is now being spent yearly on research and economic and social investigations.

There is nothing particularly new in the method employed. What is new is the growth of these activities and the faith in them displayed by the public.

Some part—perhaps a large part—of the sums now being spent on investigation is wasted. Sooner or later public confidence both in the method and in its results will be weakened if standards are not set up. I suggest that it is our duty to appraise these methods, to standardize their factors, and to develop a science in the conduct of social and economic studies.

Discussion

Thomas Adams.[3] First I want to congratulate Mr. Hunt on his excellent paper and to express agreement with his general propositions in relation to surveys of the character used in his illustrations. Mr. Hunt has rendered a great service in analyzing the methods and distribution of time and cost of these surveys. Such post-reviews of reconnaissance surveys or research operations are excellent as guides to those undertaking any kind of survey. I am a bit doubtful, however, as to the extent to which the guidance obtained from these practical experiences could be used as a means of laying down definite rules and programs of time and cost prior to making some kind of preliminary investigation. I am referring in particular to civic surveys, with which I happen to be most familiar. Every city differs from every other city and no stereotyped method or rules can be adopted for making a civic survey until after preliminary inspection and diagnosis have been made of a particular area. This means that a preliminary reconnaisance survey has to be made, for the purpose of developing a program for a more extended reconnaissance survey. The first is a path-finding operation and the lines of the paths, the time and cost of "blazing" them, can hardly be the subject of precise estimate. This preliminary work has to be done to ascertain the conditions, as well as the methods, to be adopted and the time and cost involved in making a more extended reconnaissance survey corresponding to those that have been described in the paper under discussion. In city planning we advocate that cities call in a consultant to make a preliminary diagnosis of the character of the survey that should be made, the kind of plan needed, and on what parts of the survey and plan the chief emphasis should be placed. These preliminary studies offer a real field for sociologists, I believe, as they are more impartial in their recommendations than city planners.

My point is that, while a definite program and budget should be made as the basis for a general survey of civic conditions, the actual preparation of that program cannot be undertaken without first making a preliminary reconnaissance survey of the area and conditions. In other words, there are really two surveys to be made—neither of which can be regarded as having the scope of research—and it is after the first has been made that a definite program and budget should be drawn up for a more extended investigation.

Trevor Bowen.[4] We are probably all agreed that the amount of money now being spent on various forms of social research reaches an impressive total. I have no knowledge of what the total sum actually amounts to but certainly it is large enough to convince me that one of the necessary conditions to a continued pouring of these funds into the coffers of organizations engaged in research activities, is a business-like understanding of delivery for cash as specified in the contract.

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[3] General Director Plans and Surveys, Regional Plan of New York and Its Environs.

[4] Controller, Institute of Social and Religious Research.

The obvious retort to this is, of course: How can you engage to deliver when you don't know in advance what the product will be, the assumption presumably being that the investigator does not know what he is going to find until he finds it? This leads us to the necessity for a specific definition of what we understand a research project to be.

As I see it, research may be on the one hand conducted by an individual financed or retained because of his outstanding scientific accomplishment. On the other hand, it may be conducted by an agency organized for research purposes and in which competent personnel is engaged for each project or series of projects. The arrangement usually does not specifically contemplate the conservation of the fruits of genius as in the first place: rather does it define the specific area to be explored, the project staff being engaged for this specific exploration.

It is my opinion that of the vast amount of research work now being undertaken, the portion falling within the first classification here given is small. The conditions governing the work under the first classification are, as I see it, the concern only of the parties to the arrangement, which of course excludes me from a discussion of such arrangements. My observations are concerned only with the second type of operation, in which the project centers around the subject rather than around the investigator, though of course this is not intended to minimize the importance of competent direction of the project.

With this conception of a research project in mind, it appears to me that the course of the exploration and the cost of it can be forecast with reasonable accuracy. It is true that we do not know what we shall find—that is why the project is being undertaken. But we do know what we are going to examine. If we have no information as to what records and other data are available, it is wise in my opinion to arrange a preliminary survey, when a bibliography of available source material may be compiled and other necessary reconnaissance work undertaken, looking to the preparation of a well thought through plan of operation for the project. This plan usually starts from the top: that is, we work from what we are looking for to how we are going to get it. A flow sheet of operations is constructed, bringing the operations down to their smallest possible units, and in this forecast, as I see it, the clearness of the cost estimate is a considerable indication of the thinking through of the ways and means of securing the desired results in the project. In this way a clear statement of the work to be done is made as a basis for the appropriatoin of a certain sum of money and while the nature of the findings cannot be forecast, they will show the results of the work contracted for and agreed upon.

The report may indicate the desirability of further exploration and investigation in certain directions and these can be carried out under another appropriation, if so determined upon. It may be that the contract will admit of certain latitude on the part of the project staff within he appropriation, and be provided for within the terms and conditions of the grant.

It is in my opinion quite practicable to so organize a procedure such as I have briefly sketched, that delivery of the results of social research projects may be secured as definitely as the results of any other form of inquiry.

Morris L. Cooke.[5] This paper covers (1) the desirability of working to a schedule on making surveys—especially reconnaissance surveys; and (2) the technique applicable to such schedules. My discussion has to do with the first of these points.

Not so many years ago all research workers—especially those working in pure science—took the position that any scheduling of such work was almost an impertinence. Given competence and devotion the answer sought would be forthcoming in due season—Deus volens.

This is not generally speaking our present-day attitude, certainly not for more or less routine researches carried on by other than very exceptional men. Gossip had it some years back that when a certain pure scientist of undisputed top-rating was assigned the problem of the discovery of the cause of infantile paralysis, he called about him thirty savants and boldly announced that the troublesome germ—if germ it was—must be isolated within two years. I inquired of him later what basis there could be for the story. He replied of course that there was none. But he added a statement to the effect that with so much to be discovered and to be done it was his policy to attack problems the solution of which might be expected within a reasonable time.

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[5] Consulting engineer, Philadelphia, Pa.

Those conducting studies of the kind which our author has used for illustration would be well advised to have in mind that in the long run we must satisfy those who provide money for such undertakings that they have not only been begun, but ended, in workmanlike fashion. There is too much of a temptation to feel that the money once in hand we can drift. If the supporting public is to provide funds for such purposes in rapidly increasing quantity—as they must if we are to cope with what we call present day civilization—then those expending these monies must develop a technique by which their interest is retained throughout the inquiry and confidence established at the end. The recent past provides plenty of food for the disillusionment of generous givers. I believe that the failure to plan definitely at the start is one of the prime causes of such disasters.

Mr. Hunt has been careful to use the term "reconnaissance survey." I believe Mr. Hoover coined this phrase and it is a very happy one. As a mining engineer he is familiar with the three grades of inquiry common to mining—(1) the prospect, (2) the reconnaissance, and (3) the survey. I imagine that no one would have the temerity to suggest anything but a minimum of planning as to prospecting. The very lilt of the word suggests the utmost of physical and intellectual freedom. But when one of these imaginative scouts comes back with the suggestion of pay dirt in whatever direction it may lie then from a management standpoint the time has arrived for schedules and a rather definite plan of action. I believe that especially in the case of reconnaissance surveys which are supposed to be short of duration and with conclusions not based on too high a factor of safety, excursions off to the side are to be deprecated. It is very difficult for certain types of minds to be trammeled in any such way. Spirits like these ought to content themselves with prospecting—a noble calling when pursued with social purpose. Again, I feel that especially in the social sciences we want a large number of short reconnaissances running a limited time rather than surveys long drawn out. In any given situation we usually have our hands full acting on the suggestions growing out of a reconnaissance.

John Fitch.[*] It is evident both from the paper and from the discussion, that we are in need of precise definitions. I do not understand Mr. Hunt's distinction between a survey and research, and I would not apply the term "reconnaissance survey" to such extensive studies as some of those included in his paper.

We are indebted to him for the care with which he has analyzed certain elements in the studies chosen for examination. More of such painstaking comparison is needed, and much more should be done before too sweeping conclusions are reached concerning the possibility of standardizing technique in this field. There are many variables in social and economic surveys which make exceedingly difficult if not impossible the sort of exact advance planning that is characteristic of the engineering profession. Among these variables are the relative complexity or simplicity of the subject studied, degree of specialized equipment required of field staff, ability to find competent persons free to undertake the task, extent to which co-operation can be secured from persons or agencies in the field, and, far from least, the degree to which controversial questions are involved. All of these enter in to influence the time factor.

In order to facilitate the sort of analysis that Mr. Hunt has here so ably begun, every report of an investigation should state as explicitly as possible the method used in the study. Comparisons of technique could then more readily be made. We need to know more of the methods used under different conditions, the extent to which tools of various sorts are used, as the questionnaire, the interview, original documents, etc., and the manner in which such tools are used.

There are certain ethical questions also that may well be considered. These include, among others, the right of the investigator to the information sought, the handling of confidential data, the use of introductions, and the responsibility of the investigator to the agency employing him, to the persons from whom he obtains information and to the profession to which he belongs. The latter point is suggested by the contract referred to by

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[*] New York School of Social Work.

Mr. Hunt in which the agency financing a research project reserves to itself all right of publication and property rights in all material and data secured during the progress of the work. It is impossible to discuss this point adequately here and now, but I would suggest that the question of exclusive rights of this sort must vary with circumstances and that such a contract should ordinarily be signed by the research director only when protective reservations are included.

Mary van Kleeck.[7] Mr. Hunt has made a threefold contribution in this paper: (1) he has recorded procedure in one phase, namely, the time schedule, in seven studies; the lack of such a record of procedure in investigations is at present handicapping the study of methods; (2) he has based his analysis upon comparisons between different studies, which again suggests an interesting approach to problems of method; (3) he has directed attention toward the need for setting up standards of procedure in surveys and in research.

The time schedule, however, does not seem to me to be the best phase to choose first for comparison. The attempt to apply it to these seven studies demonstrates the need for a prior analysis of the different steps in the process before comparison of the time element is made. The studies selected are taken as examples of reconnaissance studies, which by analogy with the terminology of topographical and mining reconnaissance are defined as preliminary examinations or surveys. Not all of them seem to me to have been conceived as preliminary studies. The investigations of the Coal Commission, for example, were evidently designed to cover the whole field rather than to make preliminary surveys. Not only do the studies differ in this regard, but they are also very different in the eight stages which Mr. Hunt has used as the units for comparison of the time element. For example, "E," the field of laboratory work, was radically different in the investigation of the coal industry as compared with the studies of the Committee on the Business Cycle.

Perhaps most serious of all is the lack of tests of the final product based upon the setting up of clear standards of performance, without which it is not possible to judge of the effectiveness of the time schedule in any one study or to make a comparison of the time phase in the different studies. Was it desirable to complete the field work in the study of waste in industry in two months, and was that schedule more effective than the eight months credited to field work in the study of business cycles and unemployment, and just what was the significance of the recorded change in policy which prolonged this period beyond the six months required for actual fact finding? We cannot answer the question or appraise the significance of the time consumed in successive stages unless we have some such measurement of the effectiveness of the total task. Measurement by time is, of course, familiar in industry, and I would not be understood as not recognizing its importance in the procedure of investigation. In industry, however, time measurements require, first, the breaking up of procedure into comparable stages and, second, measurement of performance.

May I suggest the point at which it seems to me comparable analyses of surveys must begin, namely, in a discussion of the methods of defining the problem giving rise to the survey? The starting point of any scientific inquiry is the formulation of questions growing out of a specific problem for which a solution is sought. Entering into the definition of the problem is a whole network of factors, including the purpose to be achieved, the circumstances in which questions are sought, the place where action must take place or the persons who must act, and the places where information is to be found. All of these factors enter into the definition of the problem; and in turn as procedure and definition of objectives grow out of the preliminary set-up of the problem, the time schedule is worked out as a corollary of the procedure adopted. When Mr. Adams urges preliminary surveys which shall not be too definitely scheduled as to time or budget or scope, he is urging, it seems to me, a very important method of defining the problem for the subsequent survey.

Consider, for example, the work of the United States Coal Commission, of which Mr. Hunt has outlined the time schedule. The problem of the coal industry had been forced upon the attention of the country by a strike. Material had been available for years in reports of the United States Geological Survey and through studies which showed the main outlines of the problem as one of industrial organization to make productive capacity meet effective demand. Excessive productive capacity had already been shown to be at the root of conflicts, the average number of days of mine operation having been recorded by the Geological Survey for thirty years as only 214 a year in the bituminous industry. Congress, in appointing the Commission and appropriating money, apparently gave it wide powers as to the kind of information which it might secure. Was it therefore necessary that the Commission should secure all the facts specified, or might it have been possible for it to have defined its problem as one of searching for solutions rather than compiling information? Was it, for example, necessary to take from the payrolls the earnings through twelve months of 660,000 miners, when the important fact of irregular employment was already clearly indicated in the statistics of mine operation, and what was needed was the working out of a possible plan of action? It is safe to say that the analysis of the experience of a comparatively small group of men in the industry, including operators and miners, would have been sufficient to have clarified the essential problems toward which the Coal Commission needed to direct its work. Mr. Hunt's time schedule indicates that because so much time was spent on the accumulation of innumerable facts, the time left for digesting the material—the important stage in the working out of solutions of the problem—was compressed to a minimum.

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[7] Director, Department of Industrial Studies, Russell Sage Foundation.

May it not be possible to arrive at certain underlying principles regarding the definition of problems in terms of objectives which will give us the basis upon which to make comparisons of the effectiveness of various procedures and thus enable us to build a better methodology in social research?

May I here emphasize Mr. Hunt's plea for the setting up of standards in social research? I see it as a compelling task for all those interested in scientific management. Is scientific management perhaps at the stage where physics was in the 90's? I heard a physicist recently recall his experience as a young man carrying forward his studies in Germany, when the men who were leaders in the science seemed to believe that the great discoveries had already been made and that it remained merely to apply them. This man saw no challenge in that situation; so he decided to enter the law, feeling that there was more work to be done there than in physics. Immediately thereafter, the Roentgen ray was discovered, and the physicists since then have been having their past discoveries superseded and their work transformed into ever more subtle and difficult problems of discovery.

Are there not signs that scientific management must learn to apply its own science to the more subtle and difficult problems of human relationships which we are coming to see as the science of management? How much do we know, for instance, on the moot question of financial or non-financial incentives and the whole problem of developing and conserving the creative power of the workers in highly developed forms of modern industry? Or again, how shall we learn to measure the relation between production and consumption? We have heard it said today that modern industry, with its tremendous capacity for production, can succeed only if the capacity for consumption be increased. Are there, however, limits to increasing the capacity for consumption? What method shall be set up to answer that question? If there be limits, then it is a question whether constantly increasing output should be the objective of scientific management. The field of discovery is as yet vague, but its vital importance is increasingly shown. We need to find the methods for making the discoveries.

Closure

I am very grateful for this able discussion of my paper. Mr. Adams' suggestion concerning civic surveys parallels closely the intensive planning which preceded such economic and social surveys as some of those which I have cited. To my mind time is of the essence in a reconnaissance. So that I find myself in disagreement with Mr. Fitch and Miss van Kleeck in so far as they question the importance of the time element. With Mr. Cooke I completely agree. The work of the Coal Commission was a reconnaissance because it was ordered by Congress to sweep together in less than a year, as a basis for future policy making, facts under a number of heads. The studies were preliminary, not definitive. The Commission had no such discretionary powers as Miss van Kleeck's comment might suggest. Mr. Fitch makes an important point in calling for inclusion of a description of method in all reports, and too much emphasis cannot be placed on planning and control, as Mr. Bowen points out.

Master Planks in the American Industrial Program[1]

Improvement in Living Standards; Increase of Output and Wages; Co-operation of Management and Workers in the Improvement of Methods; Stabilization of Employment

By **WILFRED LEWIS**
President Tabor Manufacturing Company, Philadelphia

(Continued from December, 1927, number)

Discussion

Judson C. Dickerman.[2] With the publication recently by the United States Bureau of the Census, of the national, State and larger cities Census of Manufactures for the year 1925, we appear to have comparable data for the pre-war and post-war periods which were not seriously affected by other than ordinary conditions. By examining the data for the several census years 1909-14, 1919, 1921, 1923 and 1925, we can perhaps get a fairly good picture of what has gone on in industry as relates to the interests of the wage earner, of the public at large, and possibly of the manufacturer or owner.

The speaker, during the past several months, and quite noticeably at these meetings, has detected a questioning, almost a dejected, pessimistic note in discussing the progress of industry under the stimulus of scientific management and scientific research during recent years. Particularly pessimistic have been the comments of those who based their deductions on a comparison of 1919 figures with those of 1923 and 1925. Some even discussed the situation from the very short-range view of 1921 to 1923 or 1925.

Though not a trained economist, but merely an ordinary engineer with a somewhat wide experience in observation of business and industrial conditions, the speaker holds that the 1914 period was one of severe depression in industry due to the violent changes of the Democratic tariff of 1913, and the outbreak of the Great War, that 1919 was a year in which industry was crazy, and 1921 a depression year as an aftermath of the unbalanced war conditions. So he turned to 1909 as a base year and to 1925 as a year likely to be as normal as any we shall have for some years to come.

As part of the background of the Industrial Survey of Metropolitan Providence being made in 1927 under the auspices of local organizations and under the direct charge of the Division of Municipal and Industrial Research of the Massachusetts Institute of Technology, the speaker undertook an analysis of Census Material. One very specific idea was to see what really had happened to labor as a result of all the turmoil of recent years. Another was to determine the relative positions of, and changes in, industry in different states and cities and in specific industries.

The first analysis was made for the United States as a whole, inclusive of all manufactures. Various indexes were worked out, such as ratio of number of wage earners and of total persons engaged in manufacture to the entire population, relative index of wholesale prices of 404 commodities as prepared by the United States Department of Labor and refigured to 1909 as a base, changes in total wages, and in average annual wage per worker, changes in the worker's ability to purchase or of his real wage, increases in units of production, and in value of products per worker and per $1.00 of wages, margin or balance of increase in value of products after paying for materials and labor, per worker and per $1.00 of product, and similar units.

While it is recognized that the 1909 census was inclusive of certain class sizes of establishments which were omitted in later years, information was

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[1] Paper presented at a meeting of the Taylor Society, New York, December 9, 1927. Also presented before the Third International Management Congress, Rome, September, 1927.

[2] Associate Director, Industrial Survey of Metropolitan Providence, R. I.

TABLES BASED ON U. S. CENSUS OF MANUFACTURES

Year	U. S. Population (in thousands)	Index of Change 1900 = 100	Wage Earners (in thousands)	Index of Change 1909 = 100	Ratio of Wage Earners to Population	Index of Wholesale Prices 1909 = 100
1908						92.8
1909	90,691	100.0	6,615	100	7.29%	100.0
1910	91,972					104.1
1911						95.9
1912	95,097					102.1
1913						103.0
1914	97,928	108.0	6,888	104	7.0	101.1
1915						104.1
1919	105,003	115.8	8,990	136	8.6	212.4
1920	106,418					232.5
1921	108,445	119.5	6,938	105	6.4	151.6
1922						153.3
1923	111,693	123.0	8,768	133	7.85	158.8
1924						154.2
1925	115,378	127.2	8,384	127	7.27	164.0

Year	Total Wages (in millions of dollars)	Index of Change 1909 = 100	Average Yearly Wage per Worker (in dollars)	Index of Change 1909 = 100	Total Wages Reduced to 1909 Level by Wholesale Price Index (in millions of dollars)	Index of Change 1909 = 100	Average Yearly Wage per Worker Reduced to 1909 Level by Wholesale Price Index (in dollars)	Index of Change 1909 = 100
1909	3,427	100	518	100	3,427	100	518	100
1914	4,063	118.6	590	114	4,015	117	584	113
1919	10,453	305	1,165	225	4,915	143	547	106
1921	8,193	239	1,180	228	5,400	158	779	150
1923	10,999	321	1,255	242	6,920	202	789	152
1925	10,730	313	1,280	247	6,540	191	780	150

Year	Total Cost of Materials (in millions of dollars)	Index of Change 1909 = 100	Cost of Materials per Worker (in dollars)	Index of Change 1909 = 100	Cost of Materials per $1.00 of Wages	Index of Change 1909 = 100	Cost of Materials per $1.00 Value of Product	Index of Change 1909 = 100
1909	12,143	100	1,835	100	$3.54	100	$.587	100
1914	14,162	117	2,055	112	3.48	98.3	.593	101
1919	36,989	305	4,120	225	3.54	100	.599	102
1921	25,155	206	3,630	198	3.07	86.7	.579	98.5
1923	34,481	284	3,930	214	3.14	88.6	.572	97.5
1925	35,936	296	4,290	234	3.34	94.2	.572	97.5

TABLES BASED ON U. S. CENSUS OF MANUFACTURES

Year	Total Value of Products (in millions of dollars)	Index of Change 1909 = 100	Value of Products per Worker (in dollars)	Index of Change 1909 = 100	Value of Products per Capita of Population (in dollars)	Index of Change 1909 = 100
1909	20,672	100	3,120	100	228	100
1914	23,837	115	3,460	111	244	107
1919	61,737	298	6,860	220	588	258
1921	43,427	210	6,260	201	400	175
1923	60,258	292	6,870	220	540	236
1925	62,714	304	7,490	240	544	239

Year	Value of Products per $1.00 of Wage	Index of Change 1909 = 100	Total Value of Products Reduced to 1909 Level (in millions of dollars)	Index of Change 1909 = 100	Value of Products per Worker Reduced to 1909 Level (in dollars)	Index of Change 1909 = 100
1909	$6.04	100.	20,672	100	3,120	100
1914	5.86	97.	23,600	114	3,430	110
1919	5.87	97.	29,000	140	3,220	103
1921	5.30	87.8	28,600	139	4,120	132
1923	5.50	91.1	38,000	184	4,340	139
1925	5.84	96.8	38,300	185	4,570	147

developed which showed that these very small establishments, while looming large in the count of establishments, affected the number of workers, values of products, and other data well within two per cent and for some units less than one-half of one per cent. Therefore it was concluded that 1909 figures could be used without significant error.

That 1909 and 1925 years are particularly happy as comparative years is shown by such ratios as those revealing that in both years the same proportion was counted as wage earners, nearly 7.3 per cent; that the total number of persons engaged in manufacture, inclusive of firm members, proprietors and salaried employes, bore the same relation to the population, 8.46 per cent, and that the gain in value of products over costs of materials and supplies per $1.00 of wages paid was the same—$2.50 in both years.

Among the significant deductions to be made from the analyses are the following:

The opportunity for a job in industry in 1925 was just the same as in 1909, taking the relation of wage earners to the population as an index.

The weighted wholesale price of commodities had increased from one hundred in 1909 to 164 in 1925.

The average annual wage of the wage earner had risen from $518 to $1,280 or 147 per cent. When this average wage was reduced to 1909 dollars, it had risen fifty per cent above that of 1909, showing, therefore, an absolute gain in possible standard of living of fifty per cent. Since the wage earning seven per cent of the population makes up, with its dependents, approximately twenty-five per cent of the total population—and this is a moderate estimate—we have some measure of the basis of the manifest increased buying power of our population.

The cost of materials and supplies did not increase as much as either wages or value of products.

The total value of products increased 204 per cent between 1909 and 1925; the value of product per worker went from $3,120 to $7,490 in current dollars, while the value of products per capita of population went from $226 to $544. Where the value of products is expressed in terms of the 1909

TABLES BASED ON U. S. CENSUS OF MANUFACTURES

Year	Gain in Total Value of Products over Cost of Materials (in millions of dollars)	Index of Change 1909 = 100	Gain in Value of Products, over Materials Cost, per Worker (in dollars)	Index of Change 1909 = 100	Gain in Value of Product, over Materials Cost, per $1.00 of Wage	Gain in Value of Product per Worker over Wages and Materials Costs, (in dollars)	Index of Change 1909 = 100	Gain in Value of Product over Materials Cost, per $1.00	Wage per $1.00 of Product	Balance Left to Manufacturer	Index of Change 1909 100
1909	8,529	100	1,285	100	$2.50	767	100	$.412	$.166	$.246	100
1914	9,675	113.5	1,405	109	2.38	815	106	.406	.170	.236	96
1919	24,748	290	2,740	213	2.33	1,590	206	.401	.169	.232	94.3
1921	18,272	214	2,630	205	2.23	1,450	188	.420	.189	.231	94
1923	25,777	302	2,940	229	2.36	1,685	219	.428	.183	.245	99.5
1925	26,778	314	3,200	249	2.50	1,920	249	.427	.171	.256	104.1

Year	Gain in Value of Products over Wages and Materials (in millions of dollars)	Index of Change 1909 = 100	Total Number of People Engaged in Manufacture (Wage Earners, Salaried Employes and Proprietors	Ratio to Population	Number of Salaried Employes	Average Yearly Salary of Salaried Employes (in dollars)	Index of Change 1909 = 100	Ratio of Wage Earners to Total Number of People Engaged in Manufacture
1909	5,102	100	7,678,578	8.46%	790,267	1,190	100	86.2%
1914	5,612	110	8,263,063	8.45	964,217	1,324	111	85.1
1919	14,297	280	10,812,736	10.30	1,447,227	2,000	168	84.1
1921	10,079	198						
1923	14,778	290	10,282,306	9.20	1,355,729	2,220	186	85.4
1925	16,048	314	9,773,051	8.46	1,340,382	2,350	197	86.2

dollar, the product per worker increased forty-seven per cent. This latter figure shows that the worker, with his fifty per cent net gain in wage, had produced forty-seven per cent more units of goods. Industry had seen to it, or rather, in spite of the desire of management to reap a large share in gains due to improved efficiency, the combination of influences had brought about the result that the workers in manufacture could purchase from their wages their share of the increased production.

Now the manufacturer or management is primarily interested in the balance left after paying for materials and wages. The data show that for each $1.00 of product, the owner had left for overhead and profit $.246 in 1909 and $.256 in 1925, so the owner's position was apparently slightly improved at the same time that the worker's and the public's positions were improved. With this gain in balance above wages and materials, he had seen an increase in dollar value of product to 304 per cent of the 1909 value (or a gain of 204 per cent), yet the actual number of workers had increased only twenty-seven per cent, which was the same as the gain in population in the sixteen years.

Was this apparent gain in margin or balance over wages and materials swallowed up in an increased salary roll for supervision? At a meeting in Chicago in 1913, Emma Goldman, the anarchist labor agitator, told the assembled disciples of scientific management that their methods meant saddling more soldiers on the backs of the actual workers. The census data show that the total number of salaried employes plus proprietors and firm members remains in exactly the same ratio to the workers, at 13.8 per cent of the total employed, and that the relative increase in salary per salaried worker on a purchasing power basis was only twenty-seven per cent, whereas the wage of the worker had increased fifty per cent. And all this, in spite of the fact that the tendency of businesses to consolidate and of individually owned plants to incorporate is constantly transfering to the salaried group people who, in earlier years, were listed as proprietors or firm members and whose compensation did not appear in the salary roll. Where such firm members became salaried officers, a natural inference would be that their salaries were well above the average.

While, due to the limitations of census figures and possible errors in considering the wholesale price index as directly applicable to wages, salaries and values of products, in order to get a uniform dollar for comparison, the various units worked out may not be exact measures, their relative values taken broadly must be truly significant. They certainly dissipate the pessimism mentioned above and permit the scientific manager to continue on his way rejoicing that he has not so far created a new evil while overcoming the old evils of ignorance and carelessness in management.

Scrutiny of the various units for the several years shows those changes and ratios which general experience leads one to believe occurred. The accuracy and importance of this census compilation as the best index of the progress of manufacture in the United States stands out impressively. The Census Bureau should receive the most cordial cooperation in this line of its work.

There appears to be no creditable data on the changes in real capital investment which may have been an important tributary cause for the big gain in units of production. Perhaps the data presented warrant an educated guess that capital investment, on any proper basis in which due allowance is made for depreciation and obsolescence, has not increased out of line with the increased volume of the product per worker. These data indicate overall average conditions. Analyzed as to particular industries, we can see that some industries have risen and made extraordinary developments, such as motor cars and the radio industry, while certain standard old-time industries, like jewelry and woolen textiles, have actually not even kept pace with the population, let alone shared in the average increase. For the individual in a particular line of industry, prosperity may have been plus, nil, or minus, and there can be no hopes that it will ever be otherwise, but here we have positive proof that high wages have accompanied high production and real prosperity for the great average.

It remains, in order to fix and broadcast this prosperity of manufacturing, that the other great basic productive human activities, agriculture, mining, transportation, and perhaps to a lesser extent, mercantile and service establishments like banks and insurance companies, shall improve their own practices so that they may equal the progress made in manufacture. The scientific manager must broaden his activity to all fields of human effort to produce material wealth, that manufacturing may not overrun the other fields and produce that lack of balance which means depression and hard times. Then there will be no fear of an over production of goods or an unbalancing of effort. When saturation of human desires, or more likely, exhaustion of available material is approached, hours of devotion to material industry will be shortened and human time will increasingly turn to mental, and, let us hope, cultural activities not directly associated with the production of material wealth.

Hudson B. Hastings.[3] An attempt to state the aims of scientific management in summary form must be expressed in terms which admit of broad interpretation. So interpreted, Mr. Lewis' four planks make an admirable platform.

I would suggest, however, that both the platform and the comments upon it should specifically direct attention to the entire field of personnel administration, a phase of Scientific Management in which so much progress has been made during recent years.

The collaboration of "managers and workers in order to improve the technique of production and distribution" is an important feature of personnel work, as is the last plank of the platform: "to keep men and machinery fully occupied"; and the first two planks may be interpreted to include the others. They are of sufficient importance, however, to warrant special mention.

With these thoughts in mind, and to avoid some apparent duplication in the first two planks, I wish to offer the following substitutes.

1. To increase the real income of all engaged in industry through progressive improvements in

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[3] **Professor of Industrial Engineering, Yale University.**

the equipment and processes of production and distribution.

2. To discover and utilize the potential capacity of each individual worker, to the mutual advantage of all concerned, through progressive advances in working conditions, and in methods of selection, training, transfer, and promotion.

3. To inspire both managers and workers to collaborate in order to improve the technique of production and distribution, and promote better industrial relations.

I would also like to suggest the inclusion of one more ideal for our industrial program, namely:

4. To make work itself an increasing source of satisfaction and pleasure.

I offer this last statement because I know that we all recognize the possibility of increasing the satisfaction which may be obtained in the performance of our daily work, in addition to the satisfactions which may be purchased with the resulting money income.

F. A. Silcox.[4] Master Planks in the American Industrial Program" is somewhat too inclusive as a title for Mr. Lewis' paper which starts out with the statement "Scientific management in the United States of America aims . . . " Either the paper, on the one hand, should have proposed a more comprehensive platform or been entitled "A Platform for American Scientific Management." As the latter it gives an excellent group of objectives for scientific management to attain. It is, however, quite limited as a program for American industry.

The general impression obtained by reading the paper is that industrial prosperity of the United States has been largely due to the application of the principles of scientific management and administration developed by Frederick W. Taylor and his disciples. Mr. Lewis goes so far as to state that these principles have grown to dominate the American industrial scene and that he is convinced that scientific methods are characteristic of the spirit of American management today and that further this spirit is as important in little business as in big.

No one can come in contact with an industry of small units without a profound realization that this spirit is not as dominant in little business as in big, generally speaking. In an industry like printing, made up of a large number of small units, few of the smaller plants have even a standard cost accounting system although there have been expended very nearly fifteen years of continuous effort to have such cost systems installed. It is not known upon just what basis this statement is made but the prediction is ventured that an analysis of many industries would show that the spirit of scientific management dominates only the most progressive plants in any industrial group.

Another statement is made that hosts of small enterprises have grown up, serving six score millions of buyers, and benefiting consumers as well as producers by the economies of scientific production and distribution. No doubt there have been many economies effected, but the facts show that the cost of distribution is still notoriously high. The wise use of credit is admitted to be fundamental to social and economic development, but this can hardly be attributed to scientific management used in the generally accepted sense.

The high level of American wages, Mr. Lewis attributes almost entirely to scientific management. The abundance of money, the application of high speed machinery, the more extensive use of power, are certainly more vital factors in the maintenance of high wages than efficiencies in management.

Further on he states, as evidence of the willingness of workers to improve technique, the small number of workers involved in strikes and lockouts in 1923 to 1926 compared with 1916 to 1922. It is a well known fact that the 1916 to 1922 strikes were due not to an unwillingness on the part of workers to improve technique but primarily to a sky-rocketing price curve and the determination of the workers to secure adjustment of wages more commensurate with the depreciated value of the dollar. As further evidence of the willingness of workers to collaborate to improve technique, a plan worked out with the labor unions and the Baltimore and Ohio Railroad is cited. This is one instance, whereas anyone at all familiar with the American industrial situation knows it is a well established fact that the aims as set up by Mr. William Green, President of the American Federation of Labor, have not been accepted generally by industry, and that the conflict of labor policies between open and closed shops is still a paramount fact bearing on the establishing of co-operative relations with organized labor.

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[4] New York Employing Printers Association, Inc.

There can be no controversy concerning the fundamental importance of keeping men on machines fully employed as far as is practical. The achievement in this direction is, as Mr. Lewis admits, due not to any particular application of scientific management but to the fact that as a matter of national policy a restricted immigration law became effective. Restricted immigration has forced management unquestionably to consider more vitally the question of conservation of human resources and has unquestionably been a factor in stimulating the use of improved types of labor-saving machinery.

Summing up, Mr. Lewis' paper, although giving an excellent group of objectives for scientific management, falls far short of being a general platform of American industry. He has written too much from the standpoint of scientific management as a panacea for most of our industrial ills. Certainly scientific management has not been responsible for all of the prosperity. Scientific management has not yet "come of age." It has made immense contributions to American industry. It is continuing to make them. It has gained experience and through that experience it has modified to quite a considerable extent its original conception. Its original conception of "mechanistic absolutism" gave rise to a conflict which necessitated a much more liberal recognition of human values.

The paper discounts to too great an extent the influence of such factors as the abundance of raw materials available in this country; the tremendous domestic consuming market; the change from a debtor to a creditor nation; large reserves of money available; contributions made by our technical institutions through research; training of competent technicians; the effect of a high protective tariff; and other fundamental factors of a similar character.

It may seem presumptuous to propose a number of planks for a program of American industry. Some suggestions, however, are offered to cover American industry as a whole rather than one phase of it—scientific management. The following planks of such a platform are suggested for consideration:

1. Liberal endowment and support by industry of technical education and research.
2. Promotion of economic research to secure basic information on fundamental economic changes, their causes and effects, through an organization having continuity of existence, financially underwritten on a long-time basis with a crew of trained investigators working under the direction of an advisory board, made up of representative leaders of all interests involved.
3. Promotion of scientific management to secure precision of measurement, synchronizing of materials and processes of manufacture; development of the best technique in organization and control.
4. Co-operation with labor. The recognition of the right of organization of both employers and employes.
5. Continued restriction of immigration.
6. Revision of Sherman Anti-trust legislation consistent with modern economic development, toward consolidations and maintenance of price levels to avoid violent fluctuations.
7. National program for the conservation of raw resources including coal, timber, oil and others.
8. Constructive, co-operative relationship with foregin nations.
9. Continued promotion and development of the Federal Reserve System to insure financial stability.
10. Continued and further development of a program for simplification and standardization and elimination of waste.
11. Consolidation of railroads and integration with water transportation to effect economies in transportation.
12. Comprehensive public policy in development of water power and supplemental steam power.

The above is by no means a complete program. It is merely suggestive. It would be a great contribution if the Taylor Society could draft a program for American industry and show clearly where scientific management fits into such a program.

Mary B. Gilson.[5] Mr. Lewis says that in spite of increase of output in the fields of agriculture, manufacture and transportation "little if any unemployment has resulted." Unfortunately, there are no adequate statistics of unemployment in the United States, but there are signs at present pointing toward its increase.

In a confidential statement recently issued by a large industrial corporation, it is noted that a surplus of labor is available in most sections where their plants are located and that in some places the increasing number of unemployed presents a real problem. Certainly coal mines in general have a large unemployed surplus. The steel industry is operating with reduced forces or on short time. Railroads are not projecting any increased requirements. The automobile manufacturers, other than Ford, cannot look for any great increase in the demand for men. Furthermore, the shift in type of building activity away from dwelling construction calls for fewer workers. The Federal Reserve Board reports that 11.1 per cent fewer people are employed in the chief manufacturing industries in the United States, which now require 450,000 less workers, than in 1923. Whether these workers will be absorbed by new industries remains to be seen, but certainly the employment agencies are reporting increasing difficulties in placing an increasing number of applicants. The State Industrial Commission reports that the number of employers applying for workers in the state of New York has steadily declined from February, 1927, in comparison with the corresponding period of last year, until in July, 1927, there was a decline of almost forty-two per cent as compared with July, 1926. The Commission also reports a steady decline in the number of persons placed during this period, until in July, 1927, over forty per cent fewer workers were placed than in July, 1926.

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[5] Industrial Relations Counselors Inc., New York.

May I suggest that the use of cover-all averages is likely, too, to give us too good an opinion of ourselves? Mr. Lewis says that between 1919 and 1923 the output per worker in factories increased about twenty-four per cent and between 1923 and 1925 it increased again about eleven per cent. Statistics compiled by the Bureau of Labor Statistics show that in the boot and shoe industry the increase in production per capita in 1925, over 1914, was only six per cent. The significant thing is that in 1921, production per capita in this industry was sixteen per cent higher than in 1919, dropping during the subsequent years.

Also, while it is true that production per capita in leather and tanning was, in 1925, twenty-six per cent higher than in 1914, yet in 1923 it was as much as thirty-four per cent higher, declining to twenty-six per cent during the next two years. Other examples might be cited to show that production per capita has shown a downward tendency in some industries during the last few years, in comparison with the years just preceding. It might be mentioned also that there is in general a low level of wages in the consumption industries manufacturing necessities, and averages of wages, therefore, are not a true picture of the wages of large numbers of our workers. It is unfortunate that we have no adequate statistics for the cotton and woolen industries, nor are there any statistics which would give us even approximately adequate data concerning small plants. In fact, if the automotive, auto tire and petroleum industries were omitted from the cover-all wage averages Mr. Lewis quotes, they would be reduced by about one-half.

I have been interested in Mr. Silcox's views concerning the antagonism of the interests of workers and employers and his acceptance of the theory of ineradicable belligerence and struggle for power. While I am not sufficiently optimistic to hope that this belligerence can ever be wholly eliminated I believe it can be very materially reduced. But, to reduce it our basic philosophy must be right. If ever we needed what Frederick Taylor so aptly termed a "mental revolution" it is on the subjects of wages and hours. It is true, as someone has said today, that wages are a matter of science and management and technique and not merely a matter of exhortation, yet we must acknowledge that the most elaborate structure of science and technique must rest on an ethical foundation. And the first important step in laying this foundation is to operate on our superiority psychoses.

We have in truth progressed a long distance beyond the philosophy of the mercantilist period when, although the laboring class was considered of supreme importance as a national asset, it was considered defensible to reduce the share of the worker in the general wealth of the nation to the lowest possible terms. To maintain the laborer in his position as burden bearer of society, every attempt was made to exclude him from all avenues of social advancement and to order his life for the benefit of the state. True, the mercantilist stressed the importance of steady employment, but his fear that the "lower orders of society" might become depraved and therefore of little value to the state unless they worked long hours at low wages, was his chief concern, and he seemed to have no idea of improving the status of laborers as a sound means of improving national prosperity. To be sure, liberals like Hume, Dudley North, and George Berkely, raised their voices in the wilderness in favor of the doctrine that new wants would spur the worker to new efforts which would result in the production of goods or services which would raise the general prosperity of society. Said Berkely, "Whether comfortable living doth not produce wants and wants, industry, and industry, wealth . . . Whether the way to make men industrious, be not to let them taste the fruits of their industry."[6]

But, as a whole, the chorus of voices advocating the utility of low wages as a means toward a favorable balance of trade drowned out the few dissenters, and the welkin rang with protests against workers who so far forgot their proper station in life as to indulge in "snuff-taking," "tea-drinking," "ruffles," "silks," "ribbons"[7] and other wild excesses. Vanderlint, a representative writer of the early eighteenth century, held that the standard of living should be "suitably low" to conform to the "rank and station" of the laboring man. In fact, the doctrine of the utility of hard times was founded on a belief that long hours and low wages disciplined the worker to greater effort and that it was his duty to labor unceasingly.

Said one author of the times, "Nor is it easy to conceive or invent anything more destructive to the interests of a nation than the giving an education to the children of the lowest class of her people that will make them contemn those drudgeries for which they were born."[8] Does this sound familiar to the ears of those of us who have heard many present-day employers wax pessimistic over the dangers of educating the masses, thus lessening our supply of hewers of wood and drawers of water?

Another writer of the times said, "The employment of the women and children is drinking tea with white bread and butter twice a day; an extremity that may surely be called luxury in excess!"[9] And William Temple in 1770, said, "The laboring people should never think themselves independent of their superiors, for, if a proper subordination is not kept up, riot and confusions will take the place of sobriety and good order."[10]

Because of the disciplinary attitude of the employing class, the fair, the alehouse gatherings and other amusements of the laborers were decried because they were regarded as means of enticing the laborer away from the "drudgery to which he was born." Henry Fielding in 1751, said, "Besides the actual expense in attending these places of pleasure, there is a loss of time and neglect of business . . . To be born for no other purpose than to consume the fruits of the earth is the privilege of the very few. The greater part of mankind must sweat hard to produce them . . . Six days shalt thou labor was the positive command of God."[11]

These and many other expressions of mercantilist philosophy may be found in that thrilling work of Mr. Furniss on "The Position of the Laborer in a System of Nationalism."[12] a book every one interested in the philosophy and attitudes of employers should read.

You are smiling at the condescension and snobbery with which these quotations from the eighteenth century reek. Now let me read you some statements issuing from some of our twentieth century employer-philosophers. You may say that they do not represent our American employers. I say they are as representative if not more so than are the members of the Taylor Society. The quotations I shall read are published by an employers' organization representing a membership of over six thousand, and it is quite fair to assume that opinions of a large number of members of an organization published in the official documents of that organization represent its general opinion as a body.

Here are a few statements concerning the five-day week, appearing in the official publication of one of the largest organizations of employers in the United States. Please remember when I read them that they do not date from the eighteenth century, but they bear the date of October, 1926.[13]

> Mankind does not thrive on holidays. Idle hours breed mischief. The days are too short for the worthwhile men of the world to accomplish the tasks which they set for themselves. No man has ever attained success in industry, in science, or in any other worthwhile activity of life by limiting his hours of labor.

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[6] "The Querist" (1755 edition), p. 12 and p. 38.
[7] Thomas Alcock, "Observations" (1752), pp. 45 ff.
[8] "Considerations" (1763), p. 25.
[9] Arthur Young, "Eastern Tour" (1771), 1, p. 306.
[10] William Temple, "Essay" (1770), p. 56.
[11] Henry Fielding, "Enquiry" (1751), pp. 6-7.
[12] Edgar S. Furniss, "The Position of the Laborer in a System of Nationalism," Houghton Mifflin Company, Boston, 1920.
[13] *Pocket Bulletin*: official publication of the National Association of Manufacturers, October, 1926.

> . . . The dangers of the five-day work week, in the opinion of others, who are equally qualified to judge, are that the workman—particularly the foreign workman, who is only partially trained in the advantages offered by this country—would abuse the additional time; would waste it in unnecessary pleasures, if not in vicious habits; it would mean a waste of the workman's energy; encourage a disposition to loaf; create a desire for many things that would be, not only unnecessary, but burdensome as to purchase and payment and involve men in debt.
>
> It would also create among their families a desire for luxuries and to use the additional holiday for display and injurious amusement.
>
> In other words, this time is wasted if employed in the doing of things which lead to injurious habits.
>
> The *work* of this country cannot be done in forty hours a week. I see in the movement a trend toward the Arena. Rome did that and Rome died. Most people who work do so with their hands and feet, with no joy in their work, forgetting their heads—except their mouths.
>
> The instalment plan of buying is so prevalent throughout the country that there may be no reduction in the pay envelope, and with so much more time for the Arena the demand for things will increase while the production of things will decrease and without production there will be no profit, without profit there will be no work. Then we may all go to the Arena. The men of our country are becoming a race of softies and mollycoddles; it is time we stopped it and turned out some regular he-men—too many paternalistic laws by City, State and Nation. Any man demanding the forty-hour week, should be ashamed to claim citizenship in this great country. I see in it a gradual sinking into decay.
>
> . . . If God-given daylight and time is wasted by American industry, as it will be on a five-day week, somebody else is going to take advantage of that waste.
>
> . . . If the employes motor with the family on Saturday, the roads and highways will become congested and impassable on the last day of the week as they now are on Sundays.

And again, in the New York Times of October 17, 1926, appears the following jeremiad from the president of this organization, "'Six days shalt thou labor and do all thy work.' So reads the fifth of the great commandments and for sixty centuries it has been accepted as the divinely prescribed standard of economic effort. It is the perfectly fixed basis of human achievement and social contentment. It has served America admirably in building the greatest political, social and economic system known to history. And all through the Great Book the importance and sacredness of work are emphasized as life's first and continuing obligation.

"Notwithstanding the unremitting assaults upon it as a curse to the human race, it cannot be reasoned or legislated out of existence or into an unworthy position without disastrous consequences. These constant attempts to amend the Decalogue and to adapt by alterations the moral law to the appetites developed by easy and loose living constitute the outstanding peril of our unprecedented prosperity."

If, as someone has said, the problem of industrial unrest is the problem of the attitudes of executives, then such pronunciamenta as I have just read should give us grave concern. Ideals and philosophies need to be formulated which will shame men out of such viewpoints. While it is quite true, as Mr. Lewis says, that "the point of view of management and men has changed for the better," large numbers of us evidently need to examine ourselves on certain important issues. Many of us still have that eighteenth century doubt of the propriety of the worker's enjoyment of material welfare. We shake our heads ominously over his increasing prosperity. The wife of a wealthy employer said to me recently, "It seems to me that the greatest problem facing our country today is this rapidly increasing prosperity of the working class." Until we lose this condescension toward the "working class" and unless our sense of humor jolts us into seeing clearly how absurdly funny we are when we are disturbed over the normal ambitions of all classes of people, whether they be college professors or employers or workers, we shall not have advanced fast enough to cause much ruffling of the status quo. We shall certainly not be comparable with the horse Dickens' hostler described who "rendered surroundin' objects inwisible by his extreme welocity." On the contrary, are we not in danger of becoming smug because we have attained to a position of comparative national prosperity due to many factors in our favor by the grace of chance; only too few by the grace of wisdom and planning, and practically none by the grace of a real philosophy of fair distribution of income? And without the last of these we rest on unstable foundations indeed.

As for the third of Mr. Lewis' planks, the inspiring of both managers and workers to collaborate in order to improve the technique of production and distribution,—while we have made progress in this, the examples of enlisting workers in such efforts at collaboration are pathetically few. Witness our pride in quoting our few instances of union-management co-operation and the difficulty we experience in discovering more than a negligible number of employe representation plans which are based on an actual program of collaboration in methods of production and distribution. Moreover, in only too many quarters we still have suspicion and animosity which evidences a spirit of jingoism among managers and owners as well as among workers. For example, at the recent annual convention of the National Founders Association the president of this association is quoted, in the New York Times of December 1, as stating that the history of trade unionism was one of "broken promises, intimidation, destruction of property and attempts to drive the owners of industry from immediate control of their own property," and as characterizing a campaign of the unions against communism as a cloak to cover the "unsavory" record of unionism. He also said that unionism in theory is one thing, but unionism in practice quite another matter, as though that were not true of employers' organizations, too, not to speak of civic, religious and political organizations!

On the other hand, some labor leaders and intelligentsia are just as narrow in their suspicion and condemnation of certain very laudable purposes and aims of employers. I should say that, although we have moved a long distance in comparison with the past and in comparison with many other countries where class antagonism is rampant, we have not yet produced enough examples of real collaboration in industry to deserve congratulations. An enormous amount of education of both managers and workers remains to be done to bring about that desirable recognition of "the interdependence of management and wage earners" which Mr. Green so ably advocates and which he wishes to see take tangible form throughout industry in the form of collaborative effort toward the elimination of waste.

In other words, are we Americans not a bit too inclined to boast of the phenomenal conditions which are amazing us, instead of sawing wood and waiting until we face the acid test of time and less marked advantages? Some of our individual plants have suffered from premature enthusiasm on the part of those of us who have watched their growth with pride and confidence. Yet keener competition on the outside and weakness in some part of the internal structure have exposed vulnerability and we have seen the folly of centering on the part instead of the whole, of talking as though a thing is accomplished when it is only in flux and of failing to realize sufficiently keenly the interdependence of all units in any industry. This holds true of many of our industrial experiments. If we consider any one of them as having existed a sufficient length of time to be a *fait accompli* we are making a grave error. No matter what kind of an individual experiment is under way, I would warn the experimenter (and the investigator or researcher!) not to regard it as anything but in process. And so I would sound a warning note on the subject of our national inclination to pride ourselves on our achievements. In contemplating the general field of industry in the United States, are we justified in saying that, at the present stage, "the principles of scientific management and administration as developed by Frederick W. Taylor and his disciples have at length grown to dominate the American industrial scene" and that "this spirit is as potent in the little business as in the big?" If this were true, would our coal industry be in the situation it is in today, or textiles, or many other industries which could be cited? Would not employers in general be more concerned with the analysis of markets for the purpose of determining approximately the potentialities of consumption as compared with production? Yet, except in cases of trustification, and in one or two isolated instances, there is usually an individualistic policy in our American establishments which takes no account of co-operative industrial planning against overproduction and unemployment in an entire industry.

In other words, I would say that in spite of the increasing attention being paid to methods of control both in an industry and in an individual shop, we are still far from a state of deserving congratulations. I wish I could feel with Mr. Lewis that our present day prosperity were so largely the result of planning, of foresight, of scientific management instead of due to the favors of circumstance and the chance discovery that what brings prosperity to the worker brings prosperity to the country. Is it not possible that our wide home market minus tariff barriers, our easy credit system and the increasing extension of consumers' credit in the form of instalment selling, together with our relatively favorable position in comparison with the depressed European countries, should head the list as the really potent factors in improving the condition of the working man instead of wise planning on the part of our industrial leaders? If this is so, are we not in danger of being too self-assured and of thinking we are "sitting pretty" on the ground that we are superior beings with an unwonted amount of intelligent direction? I would say that we still have a long way to go, considering the pictures presented by the textile and mining industries, for example, before we have much to write home about.

Moreover, until we become not only nationally but internationally minded in our industrial outlook; unless we see the relation between our economic prosperity and that of the rest of the world, and until we realize the value of such work as that of the International Labor Office in raising the standards of working conditions all over the world, we have no reason for being too vain of our isolated glory.

A. J. Muste.[14] I content myself with raising certain questions that are suggested by Mr. Lewis' paper without attempting to answer them.

In the first place, certain questions occur with regard to the "prosperity" to which attention has been called. There is no doubt that the real wages of American workers are higher today than they were a generation ago and doubtless are higher than the wages of workers have ever been in any other time or country. However, can it be said that the American worker is well paid today if his output today is compared with his output of a generation ago? Can it be said that the American worker is prosperous if his output is compared with that of the European worker; if account is taken of the strain to which he is subjected by speeding up, intensification of the drive for output, etc., which are characteristic of American industry and to which perhaps workers at no other period in history have been subjected? Can it be said that America is prosperous if consideration is given to the rate at which consumption must take place in this country if it is to keep pace with increasing production and if the whole economic machine is not to be thrown into disorder?

Doubt rises in one's mind also in connection with the so-called "soft spots" which exist in our economic system on the admission of even the most optimistic. There are, for example, the textile industry, the garment trades, the bituminous coal industry and agriculture. Among them, these industries employ a very large proportion of our workers. One wonders just how many "soft spots" there can be in an economic system before the system as a whole must be declared unsound.

Much of the discussion with regard to the prosperity of recent years, flattening out of the business cycle, etc., appears to proceed on the assumption that the present situation is practically certain to continue. That, it seems to me, is an assumption which may well be questioned. Is not the burden of proof, as a matter of fact, upon those who think that the experience of other periods in our economic history is not to be repeated? It seems to me at any rate that this is a subject requiring most careful study.

While we proceed with our discussion of improving the machinery of production and so increasing output, prosperity, etc., do we take sufficient account of certain larger factors such as the American tariff system, the reparations and international debt situation, the imperialistic adventures of the Great Powers, including the United States, possibilities of war, etc.?

It seems to me that if consideration is not given to these larger factors we are likely to be in the position of people enthusiastically engaged in furnishing and decorating the room they live in while the house is burning down over their heads.

It is confidently asserted that more of a co-operative attitude is developing in industry in the relations between employers and employed, "the point of view of both management and men is changing for the better."

Here again it seems to me that very serious questions may be raised. When it comes to deciding the wages and the profits that are to be paid is there any indication that this question is being settled on any other basis than the amount of organized force that each factor can bring to bear? The fact that statistics of strikes are low over a period ought not to blind us to underlying realities in this connection. In international relations, nations may for a long period prefer to settle their disputes about markets, colonies, etc., without actually going to war, but this does not signify that these disputes are being settled on the basis of co-operation rather than competition, and reason rather than force. The same may be true in industrial relations.

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[14] Dean, Brookwood Labor College, Katonah, N. Y.

In connection with the whole matter of union-management co-operation, some attention should be given to the question whether there is not an important distinction between co-operation of workers and technicians in order to secure efficient production, and co-operation between workers and those, whoever they may be, who take profit out of industry. Is it not quite possible that co-operation may prevail in the former relation, whereas competition still obtains in the latter? If so, what may this signify for the eventual development and scope of the whole plan?

It would seem obvious that the only basis upon which workers can co-operate with management or with employers (that is work *with* them) is that of organization. In what sense can an individual worker co-operate with a great industrial corporation? If this be so, then there can be no co-operation in modern industry without full recognition of the right of workers to organize. But what progress has been made in the recognition of that right here in America in recent years? Only a small percentage of workers are organized. The vast majority of workers in the basic industries are absolutely unorganized and all attempts at organization into unions on their part are met by brutal resistance—thugs, spies, militia, injunctions, etc., etc.

At the recent American Federation of Labor Conference in Pittsburgh to discuss the mining situation, President Lewis of the United Mine Workers made a statement which to my mind raises a very interesting and significant question with regard to the entire union-management co-operation program. He stated that some of the great railroad systems of the country were in a conspiracy to depress the price of coal and so to break the miners' union which may be said to be the backbone of the American Federation of Labor. Presumably, the word conspiracy need not in this connection be taken too literally. What railroads does President Lewis name in his indictment? They are the Pennsylvania, New York Central and the Baltimore and Ohio. The first of these is regarded as the most bitterly open shop railroad in the country. The second is regarded as friendly to organized labor. The third is the very railroad on which the union-management co-operation plan, often spoken of on this very account as the B. & O. plan, was first to be put into effect. Just to what extent is a new spirit prevailing in industry when a railroad such as the B. & O. can with one hand enter upon a union-management co-operation plan with its own employes, and with the other hand join with the Pennsylvania Railroad in order to smash the international union which is the backbone of the whole A. F. of L.?

As stated at the beginning, I am raising questions, not attempting to answer them. It has been said that in America there has been and will be no class struggle, or that if there has been in the past, there will not be in the future. May it not be, however, that America, instead of being the country which has left class struggle behind, is the country which has not yet entered upon it?

Morris E. Leeds.[15] Mr. Lewis' paper interests me because it definitely holds before management the broad social implications of its work. Most of the discussions before the American Management Association which I have known about have had to do with some particular phases of management which could be improved so that work would go forward more effectively and more and better goods be produced and distributed at lower costs. Doubtless the social bearing of all this has been at least in the background of many minds. Mr. Lewis' paper has the merit of bringing it clearly into the foreground. I believe it to be very important that management should give serious consideration to the broad social and economic bearings of its work, and I think that our Association might very properly give much time in the future to the consideration of just such subjects as are covered by Mr. Lewis' four planks, which I take it may be summarized by saying that management should aim for continual employment of men and machinery and should find out how to translate the efficiency which it is helping to bring about into a just distribution of the fruits of industry and high standards of living for all who are engaged in it.

Author's Closure

It has been a pleasure to find among the discussions of the "Master Planks" so much new material that the prospect of rebuilding a satisfactory platform for American Industry is very promising indeed: and I may say that the late Dr. Taylor was fully aware of the tendency to restate and expand the four corner stones of scientific management as he saw them some fifteen years ago.

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[15] President, The Leeds & Northrup Company, Philadelphia.

At that time he was contented with the following four fundamental principles of scientific management:—(1) the development of a true science, (2) the scientific selection of the workman, (3) his scientific education and development and (4) intimate friendly relations between the management and the men.

These principles have been expanded by other writers into many more and the master planks here given are simply the outgrowth of time and experience as they appear to some observers indicative of better times to come, and are in full accord with the principles laid down by Taylor himself.

I am not, therefore, disposed to criticize or object to the admirable restatement of principles proposed by Professor Hastings and others who have carefully studied the complex problem of industrial relations and given us the benefit of their views. But Taylor, I think, was concerned chiefly with the problem of production as the foundation for benefits to be distributed and enjoyed by the workers, the managers and the consumers. With him the welfare of the workers was always very much at heart. He never failed to give their interests his first consideration, while holding the managers responsible for obtaining the results out of which they were expected to find their own rewards. These, he believed, would come from a larger volume of business at lower prices to the consuming public. He saw far ahead of his time and met with stubborn opposition in various quarters which are now enthusiastic supporters of the principles he advocated and practised until he could "no longer afford to work for money." Then he gave his life to the cause for which his name is held in the highest esteem around the world. The veneration attached to his memory at the Third International Management Congress held last September in Rome under the leadership of Premier Mussolini was a revelation long to be remembered. As a delegate from this Society to that Congress I wish here to record my appreciation of the many courtesies extended and the opportunities afforded to witness the rehabilitation of Italy under the guiding principles of a life-long friend.

That our unprecedented prosperity is not entirely due to scientific management, I freely admit, as there is still a great deal of mismanagement and we are still very far from "keeping men and machinery fully occupied." It can not be doubted, however, that in the last decade, tremendous advances, attributable chiefly to scientific management, have been made all over the world, and that further progress may be expected from the development of management into a true science as anticipated by Taylor.

After Dinner Talks[1]

European Reactions to Scientific Management

I. By STAN SPACEK

Ministry of Public Works, Prague, Czechoslovakia

At the last meeting of the Taylor Society I had the rare privilege of outlining the development of scientific management in Europe since the Prague Congress in 1924.

It is a great pleasure to me that at this meeting I again have the opportunity of informing you of the latest important events and to put before you some propositions that would help in the further development of scientific management.

Many American engineers were at the Third International Management Congress in Rome, the Eternal City, where at the *Forum Romanum* Rome's greatest politicians delivered their splendid speeches which were, of course, of great help to the Roman Empire.

The World War brought the nations to recognize that we need another Forum, the new international forum of the League of Nations, where the claims and misundertsandings of nations could be settled through co-operation and treaties instead of through more wars and the killing of human beings. A little less than ten years after the World War the representatives of the nations recognized that the main task of international institutions is not politics and old style diplomacy but the finding, in this modern age, of new ways of creating better understanding between the nations. Following this recognition, the League of Nations called, as a continuation of the Prague Congress, the World Economic Conference, at Geneva. One hundred and ninety-two members and one hundred and seven experts from fifty countries, members and non-members of the League of Nations, met there to discuss for the first time problems of economics and new ways, based on economics and engineering, for creating better relations between nations. The official report speaks only of the co-operation of the Bureau of Labor, the International Institute for Agriculture and the International Chamber of Commerce. The engineering societies and corporations have not co-operated, and therefore so far they have had little influence on the development of world politics.

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[1] Presented at the Annual Dinner of the Taylor Society, New York, December 8, 1927.

The report recommends that governments,[2] public institutions, trade organizations and public opinion, as the case may be, should encourage producers to promote the investigation of the best methods and results of rationalization, scientific management and standardization, not neglecting the smaller undertakings and giving special attention to measures calculated to promote social welfare. That means the co-operation of producers, employers and workers, farmers, traders, financiers, economists and consumers. It seems to me that the co-operation of engineers and organizers all over the world would also be very important to the success of such a program and is therefore greatly to be desired.

The Conference unanimously recognized the benefits of rationalization and of scientific management and asserted the urgent need of greater, more far-reaching and better co-ordinated efforts in this field.

In view of the importance of this question of rationalization the Conference considered it desirable that the Economic Organization of the League should keep in touch with the institutions specially concerned with this subject and should include a record of its development in its reports on industrial conditions.

In particular it considered:

1. The question of rationalization in its various aspects and connections.
2. International industrial agreements.
3. The collection and exchange of information with regard to industrial conditions.

The resolutions of the World Conference desired that all countries promote in every way investigation and comparison of the most adequate methods and most practical processes of rationalisation and of scientific management and the economic and social results that would be obtained by following these methods.

Following the suggestion of Secretary Hoover, America began to work a long time ago for the elimination of waste in industry, simplified practice, etc. I am glad to say that Czechoslovakia, in accordance with the resolution made at the World Economic Conference, is going to hold a special national conference for which Dr. Emil Zimmler, the President of the Masaryk Academy, has prepared the memorandum and program. The Conference will be organized by the Czechoslovak Advisory Economic Committee in the Department of Commerce.

It seems that at present the rather narrow professional aspect of scientific management is being stressed to the detriment of its universal nonprofessional social significance. As evidence of this there is the professional instruction in various branches of scientific management as imparted primarily in professional, technical and business schools, rather than a general education in the principles and social values of scientific management, the understanding of which by certain groups would give an undreamed of impetus to the cause of scientific management. These groups are: (1) workmen, taking this term in its broadest sense; (2) women and (3) young students.

If these groups are to be reached properly the necessity of a popular booklet on scientific management (varying in its contents to fit the group to be reached and stressing the practical achievements of scientific management, such as betterment of conditions, greater leisure, enhanced social values and greater possibilities for education, becomes evident.

Further necessary steps are:

1. Preliminary conferences with responsible representatives of the labor organizations, to ascertain their viewpoints and secure their cooperation.
2. Preliminary conferences with women's organizations—the Federation of Women's Clubs, etc.
3. Preliminary conferences with the Wickenden Committee, the Carnegie Endowment for the Advancement of Teaching, the National Education Association, etc.

The co-operation of the bodies just mentioned would make possible a real campaign of education including: (1) regular scientific management films,

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[2] See Official Report, International Economic Conference, League of Nations, 1927.

(2) standard lectures (for workers, colleges, etc.,) (3) radio lectures, (4) the exchange of professors and (5) the establishment of a sound financial basis for the campaign.

The campaign as sketched would undoubtedly be worthy of the best efforts of the best men.

II. By M. L. FLEDDÉRUS

Honorary Secretary, IRI,[3] The Hague, Holland

It is indeed a great and exceptional pleasure to me to find myself among you these days, not only as a guest but also as one of your members.

I believe that the man or woman who is seething with thoughts is in the same predicament as the one who has none—both feel unable to express themselves. Also some people are inclined to speak too soon and others to speak too late. Of the latter category, I believe, only a minority lives in the United States.

In the first place I would like to convey my heartfelt thanks to officers and members of the Taylor Society present here tonight for what they have made possible and accessible to me in my capacity as Honorary Secretary of the I R I during my comparatively short stay in the United States. Owing to their kindness I take with me a world of impressions and valuable information. This does not mean that all the questions which were dwelling in my mind on coming over have been solved. Many of these questions will travel back with me to Europe again, but maybe this time their position is upside down.

Secondly, I would like to dwell for a moment on the aims of the Taylor Society as these have been recently expressed in your monthly periodical. When reading these for the first time and when thinking them over together with the general secretary of our I R I association, they affected us somewhat as a beautiful surprise—something unexpected which gives great pleasure. And I hardly dare repeat what she said to me, namely: "You know, Miss Fleddérus, these aims are so fine, they could almost be ours." Now I do not want to say that I know exactly the extent to which the objects of the Taylor Society are being understood in Europe, but, taking my own reaction as an example, I believe that the often confused interpretation of the name Taylor, and what it is supposed to stand for, will very likely be responsible for non-directing the attention to the Taylor Society of many high-minded persons, to whom the objects of the Taylor Society would not only greatly appeal, but who would feel themselves upheld and stimulated by sharing as members in a joint effort.

Thirdly, I should perhaps try to formulate before you some of the thoughts which have come to me during these past weeks in which I have seen a little of what Dr. Person has taught me to call a "well tailored" plant and something of extreme mass production, the Ford works. When analyzing the approach to industry of the Taylor Society and of the I R I, I am inclined to think that they form two much needed halves of a whole. In the introduction to the I R I Baveno report I mentioned the three essentials in production as: Men, Methods and Machinery. Frederick Taylor approached man through the alley of machinery and methods, thus approaching man as a worker. The approach of the I R I is the other way around, beginning with man purely as a human being and following him into machinery and methods. The common meeting ground here obviously is the application of methods.

With regard to the extensive research which is being done nowadays in the field of the application of methods, I have come to think that, under our present economic system its findings will—from a human point of view—more often teach us not what things to do, but what things *not* to do. This in no way lessens the great value of scientific research, for only if we have gone the whole round can we speak with knowledge and conviction.

In all scientific research, however, there is perhaps a subtle danger to be realized. The powerful human mind may easily undertake it for its own intellectual satisfaction. There are instances where I ask myself whether we are not turning quite simple things into a complicated science. Another fact to face, I think, is, that while aiming for solutions, we can often not hope—from a human point of view—to reach more than compromises.

And sometimes I wonder whether or not, if we were to follow the simple gospel of human kindness, many things would take care of themselves.

About the Ford works, this example of extreme mass production, it is not easy to speak at all. I spent four days in Detroit, following an investigation led by Miss van Kleeck and assisting at many interviews. The disastrous thing in this example of mass production seems to me to be the exclusion of all natural contact and as a consequence the almost complete isolation of man. It is a law in nature that we do not care for what we do not know. The Ford works seem to have outgrown all human proportions, and I am wondering whether there does not exist in the world of associated humanity a natural balance, bound to readjust itself, which in time to come will show up the Ford works as an example never to be repeated.

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[3] International Association for the Study and Improvement of Human Relations and Conditions in Industry.

Finally it seems to me that there has come to exist in the world a divorce between production and essential human needs. We speak about Production with a capital *P* as an end in itself. We speak about the Industrial World as a thing apart.

Friends, there exists no industrial world apart from humanity—unless we make it so.

News of the Sections and Notes

Central New York Section

At the meeting in Syracuse on Tuesday, January 24, Mr. J. C. Howell, a consultant on economic and business matters, gave an analysis of business conditions. The Purchasing Agents and Credit Men joined with the Taylor Society in bringing Mr. Howell to Syracuse for this sixth annual speaking engagement.

New York Southern Tier Section

Mr. S. G. H. Turner, President of the Second National Bank at Elmira, addressed the Southern Tier Section at the Hotel Rathbun in Elmira on January 9. Financial management was the subject of his address. On February 13, Mr. Frank A. Hatch, Vice-President and General Manager of the Shepard Electric Crane and Hoist Company, addressed the group.

New York Metropolitan Section

On January 19 the Metropolitan Section inaugurated a series of three meetings on the inter-relation of finance and scientific management. Over one hundred people, including representatives from the leading banks of the city, attended the first of this series, which proved one of the most successful of the New York City meetings.

Mr. F. W. Shibley, Vice-President of the Bankers Trust Company, and one of the leading authorities on the application of budget methods to the financial management of business corporations, gave a masterful presentation of "A Banker's View and Experience of Scientific Management in Industry." He pointed out that since the depression of 1921, there has been taking place in the minds of industrial executives and bankers a complete revolution of thought, and prophesied that those who have not already fallen by the way because of their failure to adopt the newer scientific methods will do so in the critical years immediately before us.

Research and analysis, which begin with the consumer and intelligently translate him to the producer, are now recognized as of the highest importance. With analysis of markets and consumer demand the need for the old type of cheap salesmanship disappears and only the salesmanship which involves intelligent translation of articles to consumers is necessary.

Mr. Shibley also pointed out that wastes in distribution are being done away with through the growing tendency to sell directly to consumers. Chain stores are on the increase and those who cannot afford to sell to them are called inefficient in their methods of management.

The modern banker will not lend to an industrial organization until he has a five year picture of the enterprise before him together with detailed budget plans. If necessary he helps the industry to make its plans and finds managers competent to execute them. The industries that are following the course mapped out by modern banking requirements are having less and less need for borrowed money. They are instead finding that they have money for reinvestment.

Mr. John H. McDonald, of the McGraw-Hill Publishing Company, as his comment on Mr. Shibley's address described the budget system under which his company is successfully operating. Both Mr. Barnum, of Cowen, Dempsey and Dengler, and Dr. Person expressed their pleasure at this evidence that the value of scientific management, which the Taylor Society has been teaching for fifteen years, is becoming generally recognized. Mr. Barnum pointed out that the Society had been working along these lines in the fields of production, marketing and finance but that this was the ablest presentation of the interrelation of all three of these fields that had been made before the Society.

International Congress on Industrial Relations

Cambridge, England, June 28-July 3

The first triennial Congress of the International Association for the Study and Improvement of Human Relations and Conditions in Industry (IRI) will be held during the summer of 1928 at Girton College, Cambridge, England, from June 28 to July 3. The subject of the Congress will be "The Fundamental Relationships Between All Sections of the Industrial Community." The Congress will be open to members and to persons introduced by members.

Sigma Iota Epsilon

A Professional Honorary Fraternity in the Industrial Management Field

Sigma Iota Epsilon is a professional, honorary fraternity, founded at the University of Illinois, January, 1927. The purposes of this organization are:

1. To arouse and foster a greater interest in industrial and business management on the part of undergraduate and graduate students in the colleges and universities of this country.

2. To provide a suitable recognition of scholastic achievement in this field.

3. To attract to industry a greater number of outstanding men, and to carry into business and manufacturing a recognition of the worth of scholastic achievement.

Sigma Iota Epsilon stands for leadership in business, particularly in the field of industry. The association was founded and organized by a group of advanced undergraduate students specializing in the field of Industrial Administration at the University of Illinois. It is believed that this is the first group of college students banded together in a fraternity to foster the spirit of progressive and enlightened leadership.

Sigma Iota Epsilon is not purely a professional organization. Its membership is open to two classes of men:

1. Undergraduate men in the field of Industrial Management and Administration, either in the college of engineering or of commerce. They must have good scholastic standing of at least junior grade and be recognized by the faculty. They must also show interest and enthusiasm in their work and possess outstanding qualities of character and personality.

2. Honorary membership may be conferred upon graduate students who are majoring in industrial management and who fulfill the other requirements; upon graduates of a college of engineering or commerce, or upon others who have distinguished themselves in this field of work.

The idea of such an organization has been developing for several years. At the first initiation in January, 1927, a total of thirty members constituted the Alpha Chapter. Additional members have since been initiated.

The new fraternity has had the hearty cooperation of the University of Illinois faculty and the faculties and students of other colleges of engineering and commerce are showing interest in it. It is likely that other chapters will be installed during the year.

Index to Volume XII

The index to Volume XII has been printed for binding with that volume of the Bulletin. A copy of the table of contents, title page and half page will be mailed to any member or subscriber upon request.

Reviews

Applied Psychology, Its Principles and Methods. By A. T. Poffenberger, D. Appleton & Company, New York, 1927, pages xx, 586.

This book is a thorough rewriting of the volume bearing the same title in which Professor Poffenberger joined Professor Hollingworth in 1917. The remarkable strides that have been made both in experimentation and in wise applications of psychology are clearly indicated when one sees the scope of the present volume and realizes how recent much of its data is. The text has both the advantages and the disadvantages of a volume which is presumably designed with an eye primarily to its use in college classes. In other words, it assumes the background knowledge of an introductory course in psychology and covers all the fields of its application in order to present a general picture of the uses to which psychology is now put. As a result, the extensive picture is informing and impressive, but no student in any single field, whether of industrial relations, advertising, law, medicine, or education, can find more than the most rapid kind of survey of what has been published in the psychological approach to his own field. From the point of view of the business reader, the first four hundred pages will be especially interesting, and the volume is sufficiently well documented and subdivided so that the reader can find with a fair degree of speed, what psychology has to say about the subject of his special interest. This is an advantage because there is a slight tendency to discursiveness in the treatment as a whole. From the non-textbook point of view, the value of the book would have been more effective could the whole have been reduced to three hundred and fifty pages. As it stands, it supplies the best general American picture of applied psychology that is available.

ORDWAY TEAD.[1]

Business Forecasting and Its Practical Application. By William Wallace, Sir Isaac Pitman & Sons, Ltd., London, 1927, pages xiv, 117.

The author of this book wished to bring back to England an outline of progress made here in the direction of general business forecasting analyses and some evaluation of the significance of general forecasting to business. In so compact a space, he could not well have compressed very much more material suitable to this purpose. He begins with an eloquent statement of the need for business forecasting, which no one will deny. He makes a fair statement of the problem involved in the case of an individual company. Then, in logical order he sketches the theory of forecasting; checks up some of the general forecasts that have been made by economic services; and outlines the opportunities for the application of forecasts after they are made. In these chapters there are many pointers to one interested in finding nuggets of value.

Having in mind the purpose of the author in bringing a convincing story to English readers, it seems probable that in the early chapters he would succeed in "selling" the reader on the nature, need and theory of forecasting; but, later on and quite as successfully, he would "un-sell" him by showing the present impossibility of doing it in any practical way, (Chapt. 4). On page 44 he concludes that "in consequence of these things we do not in fact now fully know where we stand in the trade cycle . . . . . nor shall we fully know . . . . . until we have been back for an adequate period on a real gold standard basis." Again, on page 45, he admits "that any failure of our trade barometer during recent abnormal years . . . . . need not be regarded as adequate evidence of any inherent defect in the underlying theory." This reminds one of the old saw about the doctor who claimed "the operation was quite successful . . . . but, unfortunately, the patient died."

After having thus "un-sold" the reader he tries to "re-sell" him again by declaring on page 51 "that business men willy-nilly must forecast the course of general business . . . . ;" that the "practical sense of the practical man will scarcely warrant fifty per cent accuracy . . . . and scientific forecasting will . . . . add perhaps another twenty-five per cent of accuracy to the judgment which must be made."

It is probably necessary to appreciate the mental attitude of the reading public to which this book is directed. No doubt the author felt he should be conservative in his claims. The attempt in this review is to size up the book for American readers. From their viewpoint we would not rate the book successful as a "contribution"; for it simply brings together material that is available elsewhere and it does not, on its surface, make clear the full justification for utilizing the processes of forecasting even if the forecasts themselves lack one hundred per cent accuracy.

In America the title of the book would seem to promise the reader, first, some assistance in developing forecasts to help in controlling an individual business; and second, some exhibit of practical methods for applying such forecasts in industry. Actually, the author has been satisfied to discuss within a limited scope some of the ways of measuring general business conditions and of projecting general trends into the future without showing how these general anticipations may be interpreted and applied in particular cases. His discussion provides a hasty record of the orthodox procedures for predicting business cycle swings in the light of historical precedents, but he enters no record at all of the equally important methods for judging an individual company's probabilities by studying the company's own "statistical position" as related to the "statistical position" of the industry in general. Since the author's aim seems primarily to argue for the forecasting of general business in terms of business cycles, the title of the book may well have been "Forecasting General Business Cycles."

In the English evaluation, the author's work would no doubt be dealt with more generously. In that country, the subject possibly needs discussion of just the sort developed according to the author's purpose and probably too much can not yet be claimed for general business forecasting there. Hence, if the author's purpose were solely to act as a liaison officer between the academic and the business worlds and between American experience and English possibilities, then his brief, meaty summary of certain American experiences will prove a worthwhile contribution in his own country.

JOSEPH H. BARBER.[2]

Business Management as a Profession. Edited by H. C. Metcalf, A. W. Shaw Company, Chicago, 1927, pages vii, 389.

Psychological Foundations of Business. Edited by H. C. Metcalf, A. W. Shaw Company, Chicago, 1927, pages vii, 309.

In these two books Dr. Metcalf is continuing the pioneering so notably begun in the collection entitled "The Scientific Foundations of Business." In order to get the most out of these books we must understand the background out of which they have grown. Each volume represents the contributions of a number of students of business administration offered at weekly conferences with a guiding theme supplied by the subject of the course. This means that much depends upon the logical development of the outline of the series and upon the aptness with which the contributors have been chosen.

Dr. Metcalf has now three times shown himself peculiarly adept at selecting timely course subjects and in fitting into his scheme contributors who, in a remarkable way, help to build up a real unity of thought.

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[1] New York School of Social Work and Harper & Brothers.

[2] Assistant to President, Walworth Company, Boston.

If one were to differentiate the volumes as to quality, which is very difficult to do, it might be fair to say that the psychological study, being somewhat more concrete and divided among somewhat fewer authors, gives the impression of greater homogeneity, power and interest. Yet, this is not to say that the other volume dealing with business management as a profession is far behind it in making an effective contribution to modern thinking about the professional requirements and aspects of the career of business.

In these volumes, as in the first, Miss M. P. Follett and Dr. H. S. Person again make contributions which stand out rather especially as new, coherent and vital.

Together the books represent an important addition to the newer type of thinking about business, and the patient reader who will not let himself be repelled by a somewhat heavy format, will be bountifully repaid.

ORDWAY TEAD.[1]

Forecasting Business Conditions. By Charles O. Hardy and Garfield V. Cox, The Macmillan Company, New York, 1927, pages x, 434.

In their preface the authors state: "We attempt here to describe the methods by which an individual can best predict the course of business prosperity for a comparatively short period rather than to make a contribution to the solution of the problem of controlling the cycle." The content of the book is in the main consistent with the purpose thus outlined. Since this work is written to appeal to students of business management and to business men, it is properly more descriptive than theoretical. It presents a general survey of methods most commonly used in business forecasting, but does not attempt to create a new system for the business man.

The volume derives its greatest value from the very considerable body of descriptive material that it presents. A brief consideration of the plan will suffice to indicate its usefulness. The first four chapters, by their non-technical explanation of needed economic concepts and statistical methods, furnish the business man a background for the rest of the book. The next five chapters describe the methods of business forecasting currently employed by five well-known forecasting agencies. Two chapters containing general discussion of theory and practice complete the first half of the book. In the second half, chapters are devoted to each one of a number of commonly used economic weathervanes, such as the stock market, railway transportation, and construction. Each chapter describes the existing indices on the subject, and briefly indicates the authors' judgment concerning the usefulness of each indicator. The rather lengthy appendix includes, among other things, extracts from the forecasts of several commercial agencies, and a general bibliography.

In describing the various methods and indices of chief importance, the authors have performed very well a lengthy piece of work. It must have been no inconsiderable task first to gather adequate information about the statistical methodology of five different forecasting services, and then to present the material on each in a single concise chapter. Likewise the assembling of leading index numbers for so many different significant lines must have involved much research and compilation. In the judgment of the reviewer, this phase of the work has been carried out in careful fashion..

The authors take as the most reasonable explanation of the business cycle, the hypothesis that it arises from the alternate overproduction and underproduction of durable capital goods. The maladjustments growing out of this constitute the train of events recognized as a business cycle. Naturally their judgment of the barometric value of the various current indices is considerably affected by the theory of the business cycle which they accept. Thus they emphasize the importance of series indicative of production and of the current volume of trade; they minimize the value of data pertaining to the money market and to the state of credit, when they say of interest rates, "for forecasting purposes they are to be regarded rather as indices of the current pace of business than as causal factors of prime importance in a cross-cut analysis." The reviewer considers this an understatement of the role of money in the business cycle. There are many times when money exercises a dominant influence on the course of business. Thus, during a period of depression the low level of interest rates stimulates long-time financing which in turn furnishes an impetus to business. The rise of rates during the later part of the prosperity phase of the cycle by its psychological and its mechanical effect has a great deal to do with determining the limits of the business expansion. Effective central bank control depends very largely upon recognition of the role of money in the business cycle.

A. ROSS ECKLER.[2]

Business Without a Buyer. By William Trufant Foster and Waddill Catchings, Houghton Mifflin Co. (for the Pollak Foundation for Economic Research), Boston, 1927, pages xx, 205.

Written, according to the statement of the authors in their preface, to give in a briefer and simpler way the main ideas of "Profits," this book admirably accomplishes its purpose. It is a worthy third to "Money and Profits." In the same clear, logical and forceful way, but without the statistical detail used in the other volumes, its argument is built up.

The principal idea is, that under a money and profit economy as at present organized, it is inevitable that consumers' volume of spending does not equal the volume of production. On the one hand corporate income from sales, in order to insure safety, must be greater than the total amount expended for goods, services and dividends. The margin thus retained, while it may be spent for so-called capital improvements, in such spending places purchasing power in the hands of consumers, but thereby increases the capacity for production which must be sold to keep the business alive and healthy. On the other hand individuals, if they would prosper, must save and so are not able to spend in consumption even the total of what they receive in income. For this reason we have had our business cycles, periods in which we produced until we had over-reached our consuming power, and then had to wait for it to catch up through the slow process of absorbing goods, aided often by a downward adjustment in the general price level, with its consequent losses and hardships to all. Hence is arrived at the conclusion that under-consumption is the basic cause in our difficulties in attaining a continuous prosperity.

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[2] Committee on Economic Research, Harvard University.

Many of the chapters had previously appeared as magazine articles, but all are here welded into a connected, forceful presentation of the subject. From reasoning such as presented, the answer to the question "Are depressions inevitable?" can only be "No"!

The business and banking world is today organized to favor the producer. He who would increase the facilities of production has little difficulty in borrowing, for he can show expected earnings on the investment as the means of paying off the loan. Borrowing for consumption is a newer idea. It has recently been brought into prominence by the growth of installment buying, and the organization of finance companies to carry the loans involved.

In practically all previous discussions of installment buying the subject has been considered from the standpoint of its effect on the business of the discussor;—in other words from the standpoint of personal security or profits. Here we have a painstaking, clearly defined analysis of the subject as a matter of economics. Reduced to such terms it is apparent that while good for some companies, and possibly good at times for some individuals, taken as a whole, it cannot go on. Considered from the standpoint of the people and of production as a whole we cannot purchase an increased production by mortgaging future income except by carrying a constantly growing amount on a future payment basis, that amount increasing year after year as an arithmetic progression. Installment selling is therefore not the final answer to the lack of purchasing power, although it is a first step.

Where did the money come from to buy all the automobiles? In this we have an admirable illustration of the fact that the faith in tomorrow makes the prosperity of today. The huge additions to capital facilities have greatly increased income. New incomes mean new buying power. And buying power means more markets. Where did the money come from? Potential bank credit benefits no one. Only when it is actually borrowed and spent does it benefit anyone. Then the prosperity and use of capital facilities are the result of incomes caused by the creation of those facilities.

The consideration given to the Italian situation from this same point of view is interesting. Italy has the materials and the will to work. No need then to find exports markets. If goods are exported they are gone. Better so to adjust the national income that they may be consumed and enjoyed at home. Incomes and consumption of the fruits of labor make a happy people. Can Mussolini realize this, and bring it about?

What is a favorable balance of trade? The United States has grown up as a debtor nation, always borrowing to create new production. Exports, an excess of exports over imports, built up the balances of credits abroad which paid the loans and kept full value in the dollar in foreign markets. But now we have changed—become a creditor nation. How shall the debts be paid? If they are paid in goods our home production must be reduced to compensate for the excess of imports. Reduction of production will in turn reduce incomes—a result far from desirable, if the fruits of production are to be carried off in consumption without stagnation and a depression. If the debts are offset by investments abroad, we are little benefited, for how will the earnings on those investments be paid? Cancellation of a debt removes the self respect of the debtor, and so must be left out as a solution. Were there enough gold in the world to pay the debts, and were they paid in gold, what would we do with it? Gold per se has no value. Only those things which can be consumed and enjoyed have value, and gold has a value only as it can be exchanged for things to be consumed. All the reasoning seems to come back to the age old conclusion—nothing has value unless it is used. Wheat must be eaten, clothing must be worn, lives must be spent. Happiness lies not in possession, but in consumption. So this as the other problems considered is reduced to the need of stabilizing consumer income, and balancing it with production so that what is produced will be consumed.

What is meant by price level? Has the Federal Reserve System aided in maintaining a stable price level? Ten years ago such a term as General Price Level was practically unknown outside of works on economics and statistics. Today we see frequent references to it in the daily press, and the man on the street is beginning to comprehend its meaning; very imperfectly, however, for there is still much confusion between the price level of individual commodities and the general price level. The latter has been greatly influenced by the policies of the Federal Reserve Board, the former could be affected only with great danger. In spite of the record made by the Board from 1922 to 1926, during which time the fluctuations of the general price level have been small, and have many times been influenced by the policies of the Board in rediscount rates, open market operations in securities, and the like, a time will come when the income to consumers from production will not be sufficient to carry off the goods produced. When that time arrives, the Board will be helpless to prevent a drop in the general price level as a part of the necessary readjustment.

Can mass production, low prices, and high wages, as advocated by Henry Ford, alone produce and conserve prosperity? Mass production has been the means of maintaining low prices consistent with high wages, but Ford has made enormous profits also. Therefore, except as those profits have been spent for more capital facilities wherewith to turn out more product, Ford has not paid out to consumers as much as he has received for his product. In the long run, therefore, he is no different from other managers, and we are still faced with a shortage of consumer income.

It seems, therefore, that the way out lies only in finding a "definite, controlled, dependable method of offsetting the deficiencies in consumer buying which at present are caused by savings" of individuals and corporations.

The "how to do it" the authors intend to discuss in their next book.

William O. Jelleme.[4]

Charts and Graphs. By Karl G. Karsten, Prentice-Hall, New York, 1927, pages x, 734.

To make a book on charts and graphs interesting and readable is a seemingly impossible task, and yet this is just what Mr. Karsten has accomplished without in any way sacrificing the scientific quality of the work. His chapter entitled "Statistics" is a gem, and its message is so important that the world would profit greatly if all would-be statisticians would read it and read it again until its teachings became fully ground into their brain fibers.

Throughout the book emphasis is laid upon the philosophy and mathematical principles underlying charts and graphs. This purpose is well accomplished, though sometimes, it must be admitted, the author is so intent upon this aim that he makes an extremely simple idea difficult by couching it in abstract mathematical symbols. The student desiring to know more about the mathematics of curves and graphs will, however, find this book extremely helpful.

The discussion in the text makes it evident that in preparing this work the author has usually had in mind the kinds of charts required by statisticians for office use, for he advocates the use of the typewriter for entering titles, stresses continuously the necessity of being able to read the original numbers from the graphs, and insists on having the data entered upon the charts. Evidently, most of the charts in the book were originally plotted on large sheets and reduced photographically. This procedure, coupled with the use of the chart margins for tabular data, produces most unfortunate results, for many of the titles are illegible and many others are difficult to interpret, making the charts highly unattractive. In presenting work charts, these defects may be unavoidable, but in the opinion of the reviewer, the author errs in not distinguishing sharply between work charts and display charts, for, in the case of the latter, all emphasis should be laid upon setting forth correctly the main facts, and this purpose is defeated by appending to a chart a mass of tabular matter in which most readers are not in the least interested. Of course, such charts should normally be accompanied by supporting tables for the use of the few who care to refer to them.

The reviewer must also disagree with the author on two other points: first, Mr. Karsten endorses as sometimes permissible the thoroughly unjustifiable practice of plotting data for December on the ordinate terminating the year; second, he refers repeatedly to a series of points connected by straight lines as constituting a "smooth" curve. The latter is, of course, a trivial matter.

Although this book is not all that could be desired when it comes to presenting models of charts for publication or display, it shows admirably how to make serviceable work charts. Dozens of novel calculating graphs and devices for the graphic solution of problems are described. Some are so intricate as to appall the non-mathematically inclined, but others are extremely simple.

The reader must not infer from the criticisms just offered that the book is not eminently worth while. It is an able piece of work and the statistician is rare who will not profit by studying this treatise.

Willford I. King.[5]

Employment Statistics for the United States. Edited by Ralph G. Hurlin and William A. Berridge, The Russell Sage Foundation, New York, 1926, pages xvi, 215.

For several years students have pointed out the inadequacies and defects of employment statistics, and the desirability of improving these significant indexes of business activity and social welfare. The present volume shows clearly the steps that need to be taken to make the records more complete, more accurate and more comparable, and represents the consensus of the best expert opinion in the country. The plan for the national collection of such statistics and the methods recommended have the authority of the American Statistical Association, through its most impressive Committee on Governmental Labor Statistics, and indirectly of the Russell Sage Foundation, which co-operated actively in promoting the Committee's work. Not the least of the many praiseworthy qualities of the volume is the clear summary of the plan and the discussions as presented by the able editors. The volume deprives society of any excuse for not having workable statistics of employment within the near future.

Herman Feldman.[6]

Industrial Psychology. By Charles S. Myers, The Peoples Institute Publishing Company, Inc., New York, 1925, pages 164.

The Psychology of Vocational Adjustment. By Harry Dexter Kitson, J. B. Lippincott Company, Philadelphia, 1925, pages viii, 273.

Dr. Myers has achieved the happy result of writing the most interesting and meaty little volume on industrial psychology available at the present time. In five strong chapters having their origin in a series of lectures delivered at Columbia University, he has succeeded in compressing the outstanding results of significant technical research reported in Great Britain by the Industrial Fatigue Research Board, the National Institute of Industrial Psychology, of which he is the Director, and by authoritative groups in other European countries as well as here. The term psychology is given a broad interpretation, being used to embrace "not only the study of mental processes but also the study of those bodily processes that accompany, result or affect mental processes." Thus the discussion covers a wide range of subjects—incentives to work, the psychological relations between labor and management, the posture and movements of the workers, selection, vocational guidance, training, industrial fatigue, rest periods, physical environment, and other factors. The presentation of what has actually been learned in these fields is so interestingly blended with exposition of the problems and methods of research and so aptly illustrated by the reports of concrete experiments, that the book should prove as stimulating to the general reader as it is valuable to the student, teacher and specialist.

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[4] Pacific Mills, Lawrence & Company, New York.

[5] Research Staff, National Bureau of Economic Research.

[6] Assistant Professor, Industrial Relations, Amos Tuck School of Administration and Finance.

The strongest chapter is that dealing with the subject of industrial fatigue. It is a fascinating summary of what experiment and research have taught about the nature of fatigue, the devices which serve to measure it, the procedure in investigating it, and the methods and principles which have been successful in reducing it. It contains knowledge indispensable not only to the executive, who is able to apply it on a large scale, but also to the individual, in a subjective way, in the understanding of his own reactions.

Chapter Three, on Movement Study, is notable for many things, but particularly for its keen comments on the way in which time and motion study have been applied in this country. Myers maintains—and in this he has many supporters in this country—that the pioneers of scientific methods in this country by many engineers who are intent on securing output and *speed,* he states that in Great Britain management prejudiced their case among workmen by a poor approach. Contrasting with the installation of new motion study has been applied by industrial psychologists and put forward as a means of securing greater *ease* of work. That greater speed would follow naturally was taken for granted. This difference in approach is more than a difference in names and slogans, for the spirit behind it indicates a greater interest in the worker than was normal to a large number of time study and "efficiency" men here. It is true, of course, as Myers himself admits, that the strength of unionism in Great Britain explains some of the greater respect shown for the workers' feelings. But whatever the explanation, the net result is that he is able to report: "So far as I am aware, there has not been a single instance in Great Britain where the workers, shop stewards or trade unions have raised objection to any factory, mill or mine investigations in industrial psychology. On the contrary, they have often spontaneously indicated various further themes of work and have even asked for investigations to be carried out." The reviewer wishes, at this point, that he could make a comparison which would show how far this good will has been of aid in having scientific management actually applied in Great Britain as against its extension in this country.

In taking exception to some of the principles of early scientific management, Myers calls attention to points that are valuable whether the criticism is justifiable or not. He objects to the insistence by Gilbreth and others that there is a "one best way" for an operation and that once discovered it should become the shop standard, rigidly enforced on all workers engaged on that process. Myers asserts:

"The mental and bodily differences between workers are such that it is impossible to train, or to expect, each worker to perform the same operations in identically the same way. In all sport and in all forms of art, there are different styles, all equally good, some suited to some men, others to others. So it must be in regard to industrial work. There is no 'one best way.' What the psychologist and physiologist insist is that there are undoubtedly bad styles and bad habits of work which the worker needs to be taught to avoid, and that it is an egregious error to force all workers into a common mould, regardless of the individual differences between them. Gilbreth's notion of 'the one best way' is not only impossible strictly to carry out in practice, because no two persons can be trained to precisely the same features of rhythm and movement, but it may also be harmful to the worker because it tends to discourage initiative." (p. 27) Taylor's methods of fixing piece rates by time study on superior workers come in for even severer criticism, the statement being made that "such procedure would now be regarded as unsound—scientifically, sociologically and psychologically." (p. 83) This is a mooted point which the reviewer has discussed with some students of scientific management, and they disagree almost violently with Dr. Myers. They state that for practical purposes the existing state of the art cannot be taken as a basis for rate setting, as it would soon be out of date. The installation of time study leads to such improvements in production technique that the rate set on superior workers soon becomes the proper rate for average workers under the new conditions.

The title of Dr. Kitson's book suggests it as a good companion volume to that written by Dr. Myers. Its purpose is to point out the psychological problems involved in choosing a vocation, the various activities that are being carried on within industry and elsewhere to promote the proper mating of worker and job, and the technical methods used by scientists investigating this subject. The book appears, however, to be too hurried an effort for the wide field it attempts to cover. It gives far too much space to unimportant matters of a routine nature, such as employment department procedure, and far too little to some of the searching problems which it raises. In form the book has features that may irritate some readers to impatience. One of these is a superfluity of subtitles —often four and five on a page—which occasionally introduce sections of not more than four or five lines. Not infrequently these subtitles pretend to solve problems which the text hardly touches. Such leads as "How to Develop Vocational Interest" (introducing a section of less than a page), "How to Induce Loyalty to the Company" (a little over a page), or "Second Rule for the Development of Interest" (a page and a half), embody the flavor of a kind of writing in "practical psychology" having no relation to the scientific and substantial content of Prof. Kitson's book or to his attainments as a scholar. If one overcomes these superficial interferences and burrows into the worth-while material in the book, he will find it a helpful source of information and reference on many vital aspects of vocational psychology.

HERMAN FELDMAN.*

Your Money's Worth. By Stuart Chase and F. J. Schlink, The Macmillan Company, New York, 1927, pages viii, 285.

All thoughtful persons interested in marketing have been looking for an honest, practical, constructive, critical study of modern merchandise distribution. This book written by an accountant and an engineer does not fill the bill. It is critical enough, but it is not practical; nor is it constructive. Many of the facts it contains are honest but their applicability to the discussion is, more often than not, very remote, and the marshalling of them is about as impressive as some of the legal briefs one encounters, full of detailed citations having no bearing on the case in hand.

In trying to prove that national advertising and high pressure salesmanship are jointly and severally reprehensible, the authors cite seventy-six cases from the records of the Federal Trade Commission. Of these offenders only two are large advertisers. One case represents a quibble on words and the other a discussion based on a difference of opinion in the definition of terms. None of the seventy-six constitutes any reflection on national advertising as an institution or as a marketing practice.

Similarly the authors quote thirty-two cases of monopoly. In one of these cases a national advertiser is mentioned jointly in connection with two other offenders.

Again, there are seventy-two cases of short weight. Some of these record experiences of twenty years ago; some of the concerns mentioned have not been in business for a very long time, and again there is not a single national advertiser in the list.

In the same way, the authors quote cases representing insufficient branding and various forms of quackery, but in practically every instance they neglect adequately to show any connection between the reprehensible practices they discuss and the theme of the book, which is national advertising, and what they designate as "high pressure selling."

There is a certain deceptive dash about the style of the book but it falls far short of its mark because of the authors' failure to connect the material they develop with their theme. Doubtless high pressure salesmanship has many crimes to answer for. It also probably is true that many mistakes have been made in advertising; both national and local. But it hardly seems constructive to charge these two features of modern distribution with all the personal crimes and misrepresentations which a meddling Commission and various other censorious bodies have been able to bring to light in the way of private adulteration or short weight during the past twenty or thirty years.

If there is a national advertiser who is constantly misrepresenting or shortweighing his goods, it would certainly be quite as effective to talk about him as it would to cite numerous cases of short weight and misrepresentation by people not engaged in national advertising, without mentioning the offending national advertiser at all.

The following paragraphs illustrate the bright, light style affected by the authors which might be quite suitable in a sprightly type of popular magazine:

"The authors of this book have no quarrel with the technique of advertising as such. It is a magnificent technique. Sanely applied it could remake the world. Think of what might be done with applied psychology in a great publicity drive for public health, for better housing, for cleaning up the slums, for honest and timely information about goods, for genuine education in a hundred fields! Many advertisers see this; a few of them try to practise it, but their hands are tied. Between the interest of the whole community in more abundant life, and of the individual in his profit and loss account, there yawns a chasm, which no optimism, no sophistries about 'service,' no bright little talks by Dr. Frank Crane and his friends, may cross. And when the technique of advertising is arrayed on the side of the private balance sheet, may the Lord have mercy on the consumer's soul, for there is no mercy in the world of dollars and cents. It is his purchasing power, not his welfare, which has first consideration with these forces struggling in the turmoil of the new competition. If he is ever to find adequate protection he must reach out and take it for himself.

"In a reasonable world, it would be a kindergarten principle that a thing good for the ultimate consumer is good for industry; that the test of business success is the excellence and serviceability of its product. This principle has operated from time to time over large sections of western civilization. Millions have been won from it—Waltham watches, Sheffield plate, English woolens, Singer sewing machines, Ford tractors—and they are not millions to be seriously grudged. It still operates in certain fields. But what protection has an honest manufacturer against the higher salesmanship in the hands of an unscrupulous rival? How many honest manufacturers have gone cascading to eternity because their goods were better than their sales appear? It is not quality but salesmanship which makes or breaks a business man today — except when he is dealing in the most primal necessities, and even then he is not always out of danger."

The remedies suggested in the book are as disappointing as the development of its main theme.

The first of these is the suggestion that there be set up a Consumers' Inspection Bureau whose business it would be to do for the consumer what the Bureau of Standards does for the United States government. This proposal probably would receive a more favorable response at some time when there is not such a strong prejudice against the meddling of the Federal government in the private life of the people. This project, moreover, has the fundamental shortcoming that it fails to differentiate between the government and the private individual in the matter of personal tastes. So far as a casual observer can make out, the Federal government is devoid of taste and personal preferences; whereas most people are largely composed of these rather elusive elements.